The Builder.

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"A Book on Building."

SIR EDMUND BECKETT has placed his friends and enemies under a fresh obligation. He has just written another book; and it is offered, as a kind of building guide, philosopher, and friend to that vast mass of the community entirely ignorant of the building art by one who undoubtedly possesses a little knowledge of it.* To those who have listened to Sir Edmund's utterances upon architecture, to those who can read between the lines of his book, it will prove useful; and it is full of excellent instances and practical exposures. It records petty reminiscences of crass professional stupidity counteracted by the ready wit of an employer determined to be master of the man whom he pays to advise him; and, moreover, two or three dicta concerning legal points not yet entirely understood by either architects or lawyers, which, coming from a distinguished Queen's Counsel, are of too much value to both professions to be overlooked or disregarded. The book is divided into six chapters, and contains a catalogue giving the dimensions of churches which originally appeared in our pages, and will be found valuable for purposes of reference. The legal portions fill but a few out of some 350 pages; the pith of the work treats of principles of construction and house building; and our intention is to examine the first four chapters, leaving the two last relating to church-building and domes for another occasion.

The author, though his foot is planted firmly, and with no light tread, upon the path marked out by himself, has not disdained to give several reasons for "offering advice on architecture and building." One of these is that in spite of the multitude of treatises relating to both there are none which give "practical information how to avoid legal or structural mistakes"; another that he has been building for other people or himself during nearly a quarter of a century; and also because, in his own words,—

> "I have substantially designed sundry churches and other buildings of considerable size, viz., the two Great Northern Railway Churches of St. James, Doncaster, and the one a mile north of Peterborough, St. Mary's, Lichfield, except the tower which had been rebuilt before; St Chad's, Headingley, near Leeds; a small church at Cliffe, in the East Riding; and Mr. Bass's, St. Paul's Church, at Burton, which is of unusual size for a modern one; also the Grammar School at Doncaster; the extension of Lincoln's-inn Library; the tower top of Worcester Cathedral, which had never been finished in Gothic times, and was formerly of a mean design in brick and plaster; and a house of my own near St. Alban's, covering 1,000 square yards; besides some smaller buildings not worth mentioning. I mean, that in all these cases the architects accepted my designs, and added little or nothing of their own. I do not include the great parish church of Doncaster, with which I have seen my name more associated than with these others, because that was designed in all its leading features, and especially its dimensions, by the greatest of modern Gothic architects, whom I need not name, though some things in it were modified at my suggestion, and others added or altered since the building."

This quotation serves to exhibit the kind of authority to whom the public, not the profession of architects, is invited to listen; and, though a part of it may not please some perhaps to whom allusion is made, we may remind them and everybody else that it is capable of diverse interpretation. The happiest home is often one in which the husband reigns as constitutional monarch, and the wife, like a wise cabinet-minister, "never shows she rules."

But we shall better prove our indebtedness to Sir Edmund by commending the incisive manner in which he exposes the fallacy of architectural competition as it is at present, and has long been, conducted. Practically a competition does just the reverse of what it is intended to do in theory. Instead of being a fair stand-up fight between architects in large practice and others with little or none, it often excludes the former, who do not think the game worth the candle; instead of being a means whereby genius is enabled to emerge from obscurity, or gifted poverty to descend from a garret, it is simply a trial of skill and pictorial device between men who work, not up to their own, but down to the public taste; and who seek to attract, often by systematically false drawings or fantastic designs in a novel style,—that is, a style with which the judges, sometimes vestrymen and their friends, are not familiar. To use Sir Edmund's own words:—"In a discussion on the 'Hope of Architecture,' at the Royal Institute of Architects, in December, 1874, I said that any architect would make me a very different design if I employed him directly from what he would send in for any competition; when the president, Sir Gilbert Scott, most significantly interjected, 'We are obliged.'" This little anecdote, the circumstances of which we distinctly remember, is literally correct; and it tells in a few words, not only the secret of architectural competition, confirmed by one who, from long experience and some profit, must know, but also the origin of half the new public buildings which disfigure the metropolis, and annoy all educated men, though probably none more than those architects whose names are indelibly written upon them. From the fallacies of competition to fallacious tenders is but a step; from the responsibility of individuals to the power of a general body is another; and our author, with a compliment to Mr. Ayrton, advises people who desire to build to adopt the course of the Government by making a preliminary arrangement with an architect about the sum he is to be paid and the manner of its payment,—hitting a little roughly at the "Rules for Professional Practice" accepted by the majority of London architects; and describing them, in the words of a certain judge, as a private code presuming to set itself above the common law. Though declining to reprint or even criticise those "Rules," which, "as a lawyer," he says, produce the exact contrary to what they are intended to effect, he gives all the clauses of the usual agreement between Government commissioners and an architect employed upon public works. These, he thinks, are capable of improvement in minor points; and to clause 17, which is,—"No rules of the R.I.B.A., or any other society, to be held binding on the commissioners,"—he adds, in a parenthesis,—"This is *ex abundanti*, since the whole agreement is opposed to the whole principle of those rules." He also gives a suggested form of conditions for architectural competitions; a form of contract between a building firm and a committee; some practical talk about "quantities," schedules of prices, tenders, "extras," divided contracts, an architect's responsibility, and the modern necessity,—we may add the almost English necessity,—for a clerk of the works.

It is not, however, as a lawyer that the author of "A Book on Building" seeks the suffrages of the public; nor does he care to be recognised either as a scholar or a man of science. He voluntarily presents himself,—and with some little emphasis,—as the pure and simple "practical man"; and, as if to show his contempt for higher things, he confounds the third and fourth epistles of Pope, misquoting,—

> "What brought Sir Visto's ill-got wealth to waste?
> Some demon whisper'd, 'Visto, have a taste,'"—

in a sentence at p. 67, where he declares that "the best builders' houses . . . . are infinitely better . . . . than the vulgar monstrosities . . . . which architects are planting over the estates of some of the great metropolitan landlords, to whom, as to Sir Balaam in the poem, 'Some demon whispered, Have a taste.'" He neither permits the supposition that there is any philosophy in architecture, nor admits the use of reasoning by analogy in discussing it. His doctrine about styles, and his apparent disregard of the difference between *a* style, *the* style, and style (admirably explained by M. Viollet-le-Duc) demand more elucidation than he has given. He says that the word "style" is a technical one, and that the only question now is, which of the old or existing styles we are to use for any particular building. In all humility we presume to dispute this proposition, and to deny that the word "style" is a technical one. What is the style of our time amongst ladies and gentlemen? Is it not to be simple, unaffected, honest, to be decent and forbearing rather than pious, to break down the barriers of class, and to be intolerant of a snob? Men nowadays aim at being comfortable rather than showy in their private dwellings, economical rather than ostentatious in their public buildings. They provide for the wants of the greatest number rather than the luxuries of the few; and therefore they encourage manufactures which mean the diffusion of manual labour rather than

* A Book on Building, Civil and Ecclesiastical; with the Theory of Domes and of the Great Pyramid; together with a Catalogue of the Sizes of Churches and other large Buildings. By Sir Edmund Beckett, bart., LL.D., Q.C. (Crosby Lockwood & Co.)

the exclusiveness of artistic workmanship. In Athens and Rome the State was everything,—all the talents were devoted to the "public magnificence," and the individual was ignored. In feudal times the problem, not inadequately solved, was the harmonising, beneath one head supported by a spiritual power, of several potentates under whose rule communities often lived, and for whom they fought. After a long period of transition, a state of things exactly opposed to that of antiquity is slowly developing in Western Europe; and to-day, comparatively speaking, the individual is everything and the State nothing.

For each individual to masquerade in some discarded fashion of the past is a perfectly legitimate proceeding; but is it compatible with the average good sense of the English people? The novel argument, offensive to poets and some painters, but based on a right foundation and the laws of progress, is that it is better for a thousand inferior families to be able to travel from one prosaic and vulgar centre of business to another,—from one hideous railway station to another—over hundreds of miles of ugly rails, than for ten noble and rich families to travel, each in a state coach and six, with a glittering escort, over winding roads—unkempt but bedecked with natural beauty,—from a city of picturesque gables and spires to ivied castles of towers and battlements. So reasonable, indeed, is the age and country, that if only half a dozen of those thousand families arrayed themselves in the costumes of half a dozen different epochs of history, they would be immediately laughed at as mad or worse than affected. Yet Sir Edmund Beckett—a thinker and a man of the world—treats the recognised difficulty in the following manner:—

"What we want is not a new style, but the genius or taste to build decently in any style. If a new one were invented to-morrow, it would very soon be old, and would be only one more than we have already to choose out of and copy. If the old Gothic builders could make the variety they did with only one style lasting for a century, surely our architects might manage it with half a dozen. Only two things are wanted to produce good architecture: taste, or the power of designing what is pleasing; and practical or scientific knowledge, which is only to be acquired as it is in engineering; which differs from architecture in requiring no taste. One can be taught, but unfortunately the other cannot, though it may be cultivated and improved."

People who know the principles of the *Builder* will be able to account for the sort of amazement with which we have read and digested this same paragraph; we admit, however, that it may possibly be a defect of our own intelligence which allows us to feel astounded by such words. We are told that good architecture depends partly upon the power of designing what is pleasing. Now, we have stood under the dome of the Táj Mahál and it pleased us; it pleases every one who sees it. The power of designing something exactly similar to it (funds being provided), is undoubtedly possessed by at least a score of English architects; a building of the kind once reared in Hyde Park and kept clean would delight all London. But it would not be architecture, at least in any much higher sense than the figure of Cobbett taking snuff at the Baker-street Bazaar is Mr. Cobbett; or than collegiate hexameters and pentameters are Latin verses. Yet the architectural language of the Táj Mahál is a living one still understood in parts of India. In Hyde Park, however, it would be a foreign one—*a* style, but not *the* style, and wofully defiant of style. Nor is practical knowledge the same as scientific knowledge; the latter is a vastly higher and more comprehensive thing. "The two real requirements," as Sir Edmund has farther put it, "are taste and knowledge." But he owns to being unable to define "taste," and he, an advocate, says, "The only test of it is that things in good taste are admired in the long run permanently, and those who have seen them once desire to see them again." Now, taste has been defined, and by practical men. Sir Joshua Reynolds has said that "every object which pleases must give us pleasure upon certain principles." "The sentiment of taste," according to M. Viollet-le-Duc, "is, very often, perhaps always, only an involuntary reasoning of which the terms escape." Taste, as it has been elsewhere put in our pages, is only culture,—the product of example and slow inheritance; and far from our architects wanting "taste, or the power of designing what is pleasing," as Sir Edmund Beckett describes the æsthetical section of design, superabundance of such "taste" is the rock upon which architectural galleys now split. We admit with him that taste does not follow education; at least, in its progress it takes a different phase or quality of sentiment. A Parsi woman of good family at the present day is more tasteful in dress and graceful in bearing than her similarly-situated English sister; the actual population of Japan has more artistic feeling than that of England. But the difference in both cases assimilates to that which exists between the youth of a people and their maturer development,—between the imagination of twenty and the judgment of forty years. We have no hesitation in asserting that, at home, taste, in whatever sense the word be taken, has made marvellous progress in the course of a generation. Style is developing. All classes of the people have improved. The age is better in morals, simpler in manners, nobler in aim, than it was even thirty years ago. The very confusion in the arts, which perplexes onlookers, is indicative of movement perpetually going on, accompanied, as it inevitably must be, with all sorts of affectation and exaggerated earnestness.

A few words more on this head. Sir Edmund Beckett affirms that "in the days when there was real architecture there was no architectural philosophy." We think that there was. Philosophical deduction applied to the arts means nothing more than systematic or methodical criticism. To say, as people did a hundred years ago, and even less, that the "Tuscan style" was intended for garden gateways, the Ionic for summer temples, the Corinthian for ornate edifices, the Gothic for rustic dwellings or country churches, and so on, is neither philosophical, nor critical, nor, indeed, anything at all but caprice, or even worse. But Xenophon's "Memorabilia" abounds with the reasoning of Socrates in arguments and maxims relating to building and the arts then subservient to it. It would be just as logical and as true to say that in the days of Bacon there was little science, and there were few manufactures. But these things have grown and developed from the English philosopher's labours and the practical turn he gave to his teaching. That very "eye for defects," on which Sir Edmund prides himself, has often caused him to philosophise even against his will. "I suppose," says he, in his definition of an architect, "the nearest approach would be, that he is a man who designs buildings which answer their purpose, and continue to be generally admired." But in the absence of "a natural good taste" amongst architects, in the general ignorance of the lower classes, and the increasing perplexity of the upper ones, who is to admire? Who is to be the arbiter of admiration? To find out whether anything answers its purpose requires merely mother-wit; but to admire—and for a building to be generally admired it must have a touch of something of art, like that of nature, which makes men akin—appreciation must be based upon reason; and a system of *pros* and *cons.* must be employed to estimate the beauty and utility of its constructive parts. That is the criticism of ordinary common sense, and it may be, and is, refined into a higher one. Indeed, now that all the remains in the world of ancient and mediæval architecture are photographed, and lie at the service of every one for commercial application,—now that the chain of native building traditions is severed, progress and improvement are impossible without some recognised, even though unwritten, laws, to guide men in the work of material creation.

The portion of the book relating to matters of housebuilding contains a great deal of information, interspersed with personal experiences. In discussing the position and "posture" of country houses, our author begins, *suo more*, by describing how "one of the grandest houses in Shropshire was left to the architect to plant as well as to build, who put it, as they often do, to be looked at rather than looked from,—looking north along a sunless valley in a large park, with plenty of fine sites and large views; and that the owner came to see it once after it had advanced too far to stop it, and was so disgusted that he never came again." Undoubtedly not only too little attention is paid to the planting of a new house, but too much is accorded to the desire that it may be seen from certain points of view, and also to the sentiment inspired by the position of any old one which perhaps it supersedes. Sir Edmund thinks that it is not the north-east, but the south-west face of a house which needs screening from the weather; and trees planted on that side are a sure protection to it. At the same time trees placed too near the walls of a house render them damp, since they exhale damp in rainy weather. Ivy, on the contrary, tends to keep the wall it covers dry. "I have heard," he says, "of west rooms which never could be kept dry until they were covered with ivy. . . . . I stayed several summers in another house where the library, which ought to be the warmest from its position, always wants a fire three or four weeks earlier than the corresponding east room, and papers become soft and damp after a very little rain, from having been built too near some large trees on the south-west. . . . . The owners of country-houses with lodges generally condemn their lodge-keepers to live in houses steeped in damp, and often cut off from the sun by large trees overhanging them." The plans of a model country-house are also given, and their different portions are very fully examined.

Nor are the details of town-houses passed over without almost equal scrutiny. We were inclined to smile on reading that a covering of concrete, at least 6 in. thick, ought to be placed over the soil, under the basement floor of a house, until we remembered that there is no law to compel such a procedure; and that no ground landlord, in the numerous restrictions he imposes upon the lessees of his land, thinks of inserting a clause which would not only improve his property and impede one of the prolific agents of premature decay, but preserve the health of those who are almost forced to live in the house,—in spite of the damp fumes rising from putrid soil through the lowest flooring. The vexed question of sound and fireproof construction is also alluded to; and, as two or three correspondents have lately interrogated us on the subject, we can here say something about it. In the book we are criticising, mention is made of Sydney Smith, who, in his lectures on moral philosophy, always begged his audience to remember that "when I say a thing is so-and-so, I only mean that I think it is so-and-so;" and in like manner, when people talk about things being proof against the elements, they necessarily use the term in a conventional sense. There is nothing absolutely proof against fire or sound. It is possible to interpose barriers to resist noise; and fire may be interrupted in its course until the natural means of quenching it can be applied, and with sufficient force and endurance. There can be no doubt that through fire in London houses hundreds of lives are periodically sacrificed, two-thirds of which would escape with impunity or slight injury in those of Paris; for the general use of floor-divisions or party-floors composed of rolled iron joists and plaster concrete, to say nothing of oak parquetry, renders this horizontal partition almost equal to a vertical party-wall. But some of the best and the newest houses in the metropolis possess no better barrier between story and story than an inch of lath and plaster and an inch of deal boarding—the space between being hollow, and intercepted only at intervals by joists of inflammable wood. Indeed, to upset a pail of water on the bedroom-floor of a London mansion is to deface the drawing-room ceiling. To prevent this it is necessary to interpose some solid substance; and all solid divisions vibrate, and are more sonorous than hollow ones. In this we can learn much from our neighbours, bearing in mind that plaster of Paris is quarried from their own ground, and consequently cheap; and that we have no alternative but to use Portland or more ordinary cement as a substitute. Even in France, though, a good floor is a costly and complicated piece of business: first, there are the rolled-iron joists to be laid at some 30 in. apart; then, at right angles to them at about 3 ft. apart are placed wrought-iron bars, which are bent at the ends so as to clip the upper flange of the joist and permit the bottom of the bar to be level with the lower flange; and upon these bars, in lines parallel with the joists and of equal length, light iron rods are laid. Under this skeleton a *temporary* ceiling of planks is propped up; and thereupon concrete of plaster and ballast is composed over the whole floor between the lower and the upper flanges of the joists; and in an incredibly short time afterwards the temporary ceiling can be removed. In very good work the real ceiling is often formed by incrusting bits of oak into the concrete, and nailing upon them the necessary laths to receive the coat of plaster. The woodwork over is put together with great precaution. Pieces of oak (*lambourdes*) are placed upon the solid filling, and in lines parallel with the joists; these pieces are laid in bitumen, and long channels are thus formed from one end of a room to the other. The oak parquetry (always tongued) is nailed upon the *lambourdes* generally in short slips about 3 in. wide; and in extremely

good work a figured parquetry floor is frequently laid upon a common one of deal. We need hardly urge that such a horizontal partition, for plaster is a non-conductor of heat, is up to a certain pitch a formidable barrier against fire. If, during the real atrocities of the Communists in Paris, some floors and stairs of similar workmanship succumbed after long endurance to the flames, it must not be forgotten that the houses of which they formed part were systematically fired; and flooded previously with oil of petroleum.

As if to show the sort of constructive finish to which the people of this country are accustomed, Sir Edmund Beckett advises as follows:—"Ordinary floors are all the better for the ventilation between the boards, which never remain so close as to be airtight." A French joiner, who does not dream of fixing his parquetry until the plastering is entirely finished, and in a fair way of drying, would be astonished to learn that "unfortunately nailing down a floor over a ceiling is apt to shake it loose." He would be still more astonished to hear that in England parquetry floors consist of squares made up of bits of oak glued together in patterns and sold separately, and then nailed and glued down on a deal floor." We are forced to believe that the author of "A Book on Building" has combined in his "quarter of a century" the experience of Macaulay's two ages. In 1830, the essayist, referring to the buildings then recently erected in London, wrote,—"In a bad age the fate of the public is to be robbed outright; in a good age it is merely to have the dearest and the worst of everything."

A hasty or casual perusal of this book may lead superficial people to think that it is published as a peg on which to hang its author's aversion for architects in general, and one or two in particular. But after a careful examination we are convinced that such a conclusion would be incorrect and unjust; and we commend the book to the thoughtful consideration of all who are interested, or who take an interest, in the building art. The tone in parts is perhaps not quite agreeable, because no one likes either himself or his kind to be held up to scorn; but here is no partial castigator. Duchesses and ladies with "a contempt for the laws of nature," "commercial gents," M. Viollet-le-Duc, who, by the way, is not "the most eminent of the French architects," archdeacons, and rural deans,—all and many others come within the sweep of a vigorous lash. Nor can we omit to state that though a few technical misconceptions and expressions of opinion, founded upon an undeveloped acquaintance with materials and workmanship, — not to speak of some instances of tautology, — do certainly occur, such slight blemishes may be remedied in a second edition, which, we doubt not, is almost immediately inevitable.* But it is not so easy to rectify generally careless composition. In "A Book on Building" passages such as the following are of frequent occurrence:—"It was never used in real Gothic, except for the roughest kind of walls, or when it was intended to be plastered; *which* Gothic buildings were a great deal more commonly than is allowed by our architectural prigs and inventors of maxims." "Nearly every country *house* (which *are* more spread out, and catch much more water than town ones) *catches* as much water as *its* inmates want." "If anybody *wants* to see what it is liable to become let *them* look." Sir Edmund Beckett has possibly thought that to "compose" for ordinary every-day use is to waste the time of a practical man; but simplicity and terseness are absolutely necessary to make a technical book readable and popular. The true way of reaching the public ear is to talk distinctly and concisely with plain words and in short carefully-rounded periods. Unfortunately, too many writers,—and our author knows better,—fancy that it is only necessary to cause a clatter in print to make their bow to the world, and gain the notice of those they denounce. As a French wit has said,—"On écrit ce que l'on n'ose pas dire;" and one or two very new books, by ladies as well as men, prove the justice of the remark. Yet in the case of a woman, however pretty and accomplished, talking at the sex upon whom nature more than custom has made her largely dependent; or in that of an amateur architect, however clever and experienced, aspersing the whole building fraternity about the occupation to which they studiously and commercially devote themselves, there is much more to regret than to condemn. For, though rudeness may sooner attract, courtesy holds people longer; and in one respect we are fortunate, since, in assuring a learned baronet of our hearty wishes for the success of his last book, we need use no other language than that of polished men.

* At p. 87 of the book, some remarks on the "destruction of plaster" in churches are said to have been delivered at Northampton by Sir Gilbert Scott, R.A.,—remarks opposed to his recently-published utterances. They form, however, part of an excellent paper read before a Lincoln Society by Mr. G. G. Scott, M.A.,—an architect, and a son of the former.

LEEDS MUNICIPAL OFFICES COMPETITION.

THE designs submitted in competition for the proposed Municipal Offices at Leeds, and which have been publicly exhibited in the Town-hall, present a higher average of merit than is usual in such cases. They are not, to be sure, very numerous (about three or four and twenty), nor are there many that we positively admire much; but there is a smaller proportion than usual of designs that are manifestly unsuitable or preposterous. This is perhaps partly owing to an influence which at the same time has had in another sense an injurious effect on the character of the designs. The site for the proposed building immediately faces the longer front of the Town-hall, on the other side of Calverley-street, which will divide the two buildings. The competition designs illustrate forcibly the responsibility which attaches to the architect of a great central building in a large town, for they are nearly all influenced more or less by the desire to be in keeping with, in some cases almost to imitate, the Town-hall. We will not be so rude to the architect of the latter as to infer that this result must be entirely disastrous. From one point of view the Leeds Town-hall is admirably in keeping with its neighbourhood; its square heavy masses and absolute uniformity seem the proper culmination of the architecture of Leeds, the dullest (in its modern portions at least) of all large towns, whose wide empty streets and square warehouse-looking buildings oppress the sense of the visitor. But when we see a second edition of this same squareness and heaviness resolved upon, indeed striven after with emulation by various industrious and not untasteful architects, we cannot help wishing that the new building had been further from the Town-hall, so as to have allowed its architect liberty to break through this dominating influence a little. In a more detailed manner we fancy we can trace the influence of the central building upon the new designs in an altogether wrong direction. The plan of the site for the new building is irregular. It is bounded at one end by Centenary-street, and at the other end by Great George-street,—streets returning at a little more than a right angle at each end from Calverley-street; but at the Great George-street end there is a break in the back line of the site, which is narrower here; and this portion of the land is specially purchased for School Board offices, though immediately contiguous to the portion devoted to ordinary municipal offices. According to the natural principle of designing buildings, there is, of course, a direct suggestion here for a variety of treatment, by giving to the School Board portion, which is completely isolated in plan from the rest, a special and separate character. But the architectural atmosphere of the neighbourhood is conventional; the Town-hall is absolutely uniform, consequently it seems to be taken for granted that the new building must also be uniform; and so every one of the competitors, without exception, has thrown away this obvious "lead" towards a varied and more or less picturesque combination, and has laboriously masked the two departments behind an absolutely symmetrical screen, in nearly all cases with a more or less heavy effect, in some cases with absolutely injurious results on the plan, which might have been easily avoided,—which there was every reason in the condition of the building for avoiding,—if only they would have gone to work the natural and not the artificial way.

The municipal portion of the building was to provide, according to the conditions, a principal floor, accommodating the borough engineer's department, the main offices of the gas and water departments, and the public accountant's office; a ground floor, or raised basement, accommodating the lamps, highways, and police departments, and some subsidiary offices of the gas and water departments; and a second floor, devoted to a public reference library, lending library, and reading-rooms. It will thus be seen that while the conditions suggest a sub-division vertically into School Board and municipal sections, which, as we have said, has been ignored by all competitors, they suggest vertically a principal story predominant over the rest, and a library story which might give occasion for special treatment.

In the first premiated design, "Crayon" (Mr. Corson), the principal floor is duly emphasised by large arched windows, with an "order" between them on the wings and centre; a rusticated podium, pierced with windows for the ground-floor, forms the basis to the principal floor, and a strongly marked cornice crowns it, carried all round the three principal fronts; over this cornice comes the library department, as a rather large and heavy attic, with flat fluted pilasters and a balustrade over, with the usual style of flower-pot finials. There is not an original feature or idea in the whole; but the author treats the stock-in-trade properties of "Italian" design with knowledge and good taste, as far as they go; and from a Leeds point of view (perhaps we should say, "a Leeds-Town-hall point of view") there is not much complaint to make in regard to the selection on architectural grounds: it is certainly the best plan out of the eight selected ones; and, though a most heavy and uninteresting building, does not sin against good taste or common sense. The roof forms, of course, no part of the design, except in so far as regards five convex-lined Mansards, a large one crowning the centre feature over the principal entrance, and four others on the angles of the wings, and we hope added to the drawing as afterthoughts, as they have not the slightest relation to the substructure, and look very awkward and unmeaning; but this, we suppose, will be modified before the building is carried out. The first paragraph of the architect's report confirms curiously what we had said above as to the influence of the Town-hall upon the designs. "I determined," he says, "that the new buildings adjacent to the Town-hall should be similar in style to the Town-hall, but not identical in treatment. I think that a certain extent of variation from that building would be to the advantage of the effect of both": so that it appears that Mr. Corson regarded the notion of actually copying the Town-hall as by no means out of the question, but on the whole undesirable! The plan of the building, without aiming at "points," is very simple, compact, and practical. The accountant's public office is near the principal central entrance, which gives access also to the main corridor running parallel to Calverley-street, and returning parallel to Centenary-street,—a type of corridor arrangement followed by the greater portion of the competitors. The central portion of the site is occupied by an open court, also parallel to Calverley-street, for light and access to the basement offices, across which the back block of building, containing the main portion of the water offices, can be reached by a bridge in a direct line from the main entrance, as well as by the return corridor at the Centenary-street end. As nearly all the competitors have this open court in pretty nearly the same position, though varying very much in extent, and a large proportion show the bridge over it, we presume there has been official suggestion in this matter. The corridors will be fairly, but hardly amply lighted; the library stairs are kept, as they should be, quite unconnected from the business part of the building, and have a separate entrance from Centenary-street; the library floor is very well arranged, with two corridors marked "Reference Library" and "Lending Library," leading at right angles from the main staircase to the two departments; the reference library occupies the central space in the front block, and the lending library the long narrow block in the rear. The space for the public in the lending library counter-room is awkwardly shaped, and might be improved. The author provides a mezzanine story next the inner court, not suggested in the conditions, but really the only practical way of utilising space in a collection of rooms of such different sizes (several of the competitors adopt the same course). The School Board buildings are carefully planned in regard to the provision of staircases for each of the classes of persons who have to use the buildings in connexion with the Board-room, architect's office, and large examination-room; this latter, which has proved a difficulty in some

of the plans, the architect treats as a long room parallel to the Great George-street front, a break in which naturally suggests the opportunity of a provision for temporarily dividing the room into two portions here when desired. As to the cost, Mr. Cockerell, the referee, has already expressed his opinion that the committee's estimate of 60,000*l.* for the whole buildings is too small for any satisfactory structure, and we cannot think Mr. Corson's would come within the sum; but it is by no means one of the most extravagant of the set.

Of the other eight designs selected by the committee for special consideration, that placed next in order of merit is "Hoc Securior," a design with a large Corinthian order of three-quarter columns carried through two stories, and exhibited in a beautifully executed pen-perspective of admirable freedom and boldness of execution, which seems to have carried away the (presumably) cooler judgment of the referee, as well as that of the committee; for, in spite of the fine drawing, the design is faulty to a degree, if considered in regard to the true basis of architectural treatment. The principal story is not emphasised at all; the ornamental details are in most meretricious taste,—

> Quips and cranks and wreathed pots,
> Garlands twined in wanton knots

(to "adapt" Milton a little): and the wings are crowned each with a lofty and heavily-built-up pedimental erection, picturesquely conceived, but without a shadow of excuse in the roofing (no roof is shown at all), mere masses of stone piled up to tell a falsehood. This is the kind of thing that makes the study of a set of competition drawings such a melancholy task. We fancied such flagrant falsities of design as this were now universally condemned, but here we find them all flourishing as lively as ever, and an able professional referee praising them. The plan is adequate in general, but the library staircase is mixed up with the business traffic of the building in what would prove a very inconvenient manner.

"Spero" (Messrs. Hill & Swann, of Leeds)* looks well in elevation, but not in perspective, the large order running through two stories having the cornice, blocking, and everything broken round the top of each column, so as to cut up the design, when considered in perspective, into a series of vertical lines. This is in the wings only; the recessed portions are much better treated, with no "order," only large windows, with semicircular-headed panels over them, filled with sculpture; this portion, we admit, seems out of keeping with the wings, which is perhaps the meaning of the referee's rather ambiguous statement that it is wanting in "sufficient appreciation of scale." The plan is up to the mark; the corridors are rather wasteful of space, and we may remark on the curious anti-climax shown in this and other plans, in leading a broad corridor and bridge straight across from the principal entrance, to end only in a narrow passage, and the window of the sample-room of the water-department. Corridors should have a relation, in size and position, to their object, so that the plan may tell its tale at once. (The entire want of subordination in this respect is one of the great faults of the Town-hall, where any door may lead anywhere—or nowhere.) The library entrance and staircase are sufficiently separate, but the library floor is badly planned: see the position of book-binding and store rooms close on the principal stair, and with no subordinate stair or lift; and the lavatories so placed as to have a raking fire from the counter of the lending library. The examination-room in the School Board Department is very awkwardly shaped.

"Plato" (Mr. W. Bakewell): a capital design,—for a warehouse. It is not apparent why the author adopts the Greek philosopher's name as his motto, for his building is further from Greek reminiscences than most of them; it is an oblong block of building, in which the effect is entirely obtained by fenestration and either tiled or carved ornament (it is not very apparent which) in panels, the treatment being flat in general effect; there is a balustrade railing over the cornice, but the roof is frankly shown,—in fact, predominates too much, being all on one level, and unbroken except by dormers which do not rise as high as the ridge. The principal entrance is marked by a kind of projecting canopy, which is the only break in the squareness of the whole. There is a simplicity and honesty of treatment about this design, but it is greatly wanting in dignity and effect: the plan has very defective points, the library entrance and staircase are badly managed; space is wasted in the passages; and, at the Great George-street end, the obtuse angle of the street has been followed, while the difficulties entailed by this choice have been shirked: the examination-room thus becomes an irregularly-shaped trapezium, and the author does not show how he proposes to accommodate the design of its large roof principals to the varying width. It is difficult to account for the position of this design in the competition.

"L. P. O.": a Palladian design; rusticated basement, Corinthian columns and pilasters through two stories, with windows of no very particular character between, neither story predominating; no roof is shown, but *en revanche* the architect has utilised the regulation terminal vases on the balustrade as chimneys, and takes care to tell us that those which are not used as chimneys are made to resemble the others. There is something poetic in the idea of these smoking vases, recalling the celebrated pot in the story of the "Fisherman and the Genie" in the "Arabian Nights." The plans were hung too high to be very well studied; they seem good, and with well-lighted corridors, &c., the design seems to have even less reference to the plan than usual. There is something in the way in which the entrance-door at one side of the principal portico is balanced by a corner window of the engineer's office, and a centre door is contrived opening on to a blank wall,—all for the sake of symmetry,—which is refreshing, and takes us back to the days of our youth. There is a certain sort of old-fashioned good taste about the exterior, and it looks well in perspective, but we cannot go back to that sort of thing now.

"Nota bene" (Messrs. Adams & Kelly, Leeds) is a design with a good deal of merit, in what might be termed the French hôtel-de-ville style, a free Renaissance, producing, in fact, rather a Gothic effect *en masse*. It looks less well in perspective, from the design when so seen cutting up into vertical segments too much, and there is not breadth and solidity enough in the treatment to bear carrying over so large a block of building. If the authors, instead of aiming at this unbroken mass, would have broken up the building, as we have already said the site suggests, they could have made a much more pleasing design with nearly the same materials; as it is, they have got picturesque detail grouped in an unpicturesque manner. The library entrance is not well managed, and seems jumbled up with the sanitary department (perhaps on the principle of securing *mens sana in corpore sano*), but in other respects the plan seems a much better one than some others that are placed ahead of it, and makes the most of the space. The amount of elaborate stonework would render it, however, a very expensive design.

Of the other two designs included among the eight, "Leodiensis" and "Q. E. D.," it is scarcely necessary to speak particularly, as they have not the slightest claim to selection on their merits; in the latter the architectural detail is simply what might be described as "flummery," and that of the most puerile description. That such a design should have been among the selected eight is little less than an insult to the authors of some of those not so selected, and the fact proves at least the utter incapacity of the committee to form a judgment on architectural design.

Passing to some of those which have not had the good fortune to fascinate the committee, we notice (taking them in the order of hanging) a very nice and refined design under the title of "Spes," by Messrs. Bell & Roper, of Manchester. This is a design of Jacobean type, treated with some originality; the principal floor lighted by large round-headed windows, with mullion and transom frames, between a kind of compound buttress, the lower part a flat projection with a niche and statue and finished by a little curved pediment, on which stand light coupled columns, which rise to the main cornice, cutting through the second-floor string line. The whole is very elegant and well considered, and, moreover, economical; nor do there seem to be any serious defects in the plan, though it is not equal to some others. The perspective view, lightly tinted in Indian ink, is a very nice drawing, and the whole set very meritorious.

"Leodiensian," judging from a letter we saw in one of the local papers, considers himself an ill-used man; and (though that is, of course, the normal state of mind of unsuccessful competitors), we are rather disposed to agree with him. His plan will not bear very close examination; the library floor is ill-planned, or hardly planned at all; there is insufficient staircase accommodation, and what there is is not well placed, and there are other weak points, but also some good ones. The architectural treatment appears to us to be among the most pleasing of all the designs exhibited, though not shown in such able or effective drawings as some others; it is Early Italian Renaissance, with two orders and a cornice between, and windows between the columns; the roofs are made part of the design and effectively treated; behind the centre pediment is a rather graceful, though not very original, tower. The author carries a mezzanine over nearly the whole of his principal floor, which is cleverly worked into the fenestration of the design so as to indicate it as a separate story: in taking this course he has, however, injured his principal story, perhaps practically, certainly architecturally, depriving the design of some dignity and of subordination of effect. This is, however, a much more logically designed building in relation to its contents than the formal structures with one big order which we have noticed; and it is a more pleasing structure, as a matter of architectural effect and grouping, than the first premiated design: but then it is not so practical in other senses; the tower means nothing, for instance, and is actually in the way in the library plan, and the detailed treatment of design and plan may argue a want of experience. Still, we think the author of this design deserves more credit than he seems to have got.

"Harmony" (Messrs. Alexander & Henman, Stockton-on-Tees) is a very ambitious and very able set of drawings, completely beyond the mark in cost. A large order of square pilasters is carried through two stories, from a heavy rusticated basement, with the two ranges of windows between,—the lower circular-headed, the upper smaller and square-headed. The perspective view, a fine sepia drawing, has a powerful effect. The plan is not bad, but has defects: imperfectly-lighted corridors, and the library-entrance confusedly planned. It is no use stating on a plan that a particular entrance is for such a department alone: the plan itself ought to render any other supposition impossible, or it is faulty. But this is a design showing considerable talent and spirit, and first-rate draughtsmanship. The authors add a large detail drawing.

"Utility" is a design hardly corresponding to its title (designs labelled "utility" seldom do), as its only noticeable point is a rather effective treatment of a central and subordinate cupolas, which have no obvious use.

"Omne Verum" (Mr. Mason & Mr. Powell, London) is one of the few designs which attempt what we should regard as a matter of course, viz., a characteristic treatment of the library portion. The principal story has an order of columns with pedimented windows between, carrying a strongly-marked cornice, over which the library story is treated without windows, with flat fluted pilasters and panels, with central ornaments on the wall between. No roofs are shown, and the long unbroken line of parapet adds to the heaviness of the upper story, which overweights the lower portion somewhat; but this might be modified without affecting the character of the design, and the attempt is meritorious. The plan has defects, but not of the most serious nature.

"Comme il faut" (Messrs. Holtom & Connon, Leeds) shows some originality of treatment, but is wanting in refinement; the plan has the merit of well-lighted corridors. The same architects exhibit a Gothic design (the only one) under the motto "Finis coronat Opus," an application of Geometric Gothic in which a certain municipal type is achieved, with no special originality: the perspective view is a good drawing, but the design is hardly suited to the site, and the tower which is introduced is absolutely without motive or excuse on the plan; it develops from nothing, and in architectural design *ex nihilo nihil fit*.

"*Pro rege et grege*" (Mr. E. R. Robson): one of the cleverest designs in the room; in saying which we by no means commit ourselves to admiring it. From the colouring it is apparently a brick building, of the most pronounced "Queen Anne" type, but treated in a manner which realises something very like absolute originality from an exceedingly ingenious combination of mongrel details. On a plain basement, with a balustrade like wooden stair-rails in front, comes a

* We give the names of authors where they had been appended to the drawings, which was not the case with all.

range of flat pilasters fluted at the upper part, the flutes stopping at the impost level of the semi-circular-headed windows between them. A light cornice with a Greek key pattern as frieze comes over this, above which the library story is here again treated characteristically as a windowless wall, relieved occasionally by a slight projection, finishing in a curved pediment, or by "pots" placed over the pilasters where the upper wall falls back sufficiently to allow space for them. Square masses, presumably chimneys and ventilators, rise at intervals from the cornice, with "stair-balusters" between, and the wall is further decorated by terra-cotta festoons, introduced as if looped along under the cornice. A centre erection, with extraordinary pepper-pot angle turrets, breaks the line of roof. Except this and the festoons (which look simply silly) there is, with all its oddity, a remarkable absence of commonplace or vulgarity in the design (which is further illustrated by a fine detail drawing); and the plan is an admirable one, about the most compact in the collection. This is also almost the only one, as far as we noted, which attempts giving any character and style to the inner elevations towards the centre court; in most cases these are just left in a hole-in-the-wall state, while all the "style" is concentrated on the exterior,—a vicious, but nearly universal practice. Many would probably think this design ugly (we should possibly be of the number), but no one who understands the matter can question its ability. That a set of drawings like this should have been left out of the running in favour of some among the chosen eight is almost laughable, unless we are to attribute the selection to something else than mere ignorance.*

"S. P. Q. L." we take to be the work of a young designer; it wants refinement and restraint; but there is a good deal that is really clever about it. The author has thought for himself, and has aimed at treating the buildings in a characteristic and effective manner; nor has he failed in doing so, but he has not succeeded in uniting the whole into a homogeneous conception. The plan is rather effective than practical; but the author has ideas.

"The Bride Elect": under this high-sounding title Messrs. Caws & Eltringham (Sunderland), embody their ideas in a very ambitious and showy design of Roman type, with a large order through both stories, a big dome in the centre, and cupolas on the roofs of the wings, treated in a somewhat original manner. There is effectiveness of a theatrical description in the design.

"Argos" shows a pretty Indian ink perspective of a nicely proportioned and balanced façade, also of Roman proclivities; the general effect is tasteful of its kind, but the design will not bear criticism in detail.

"Alps" (Messrs. Hornblower & Son, Liverpool) is a plan in which the authors have sacrificed real convenience of arrangement to the *ignis fatuus* of an apparent symmetry and effectiveness of plan; entrances are made at each angle of the front, leading to a circular lobby in the centre of each wing, carried up and ending in a cupola on the roof. The arrangement is very good at the business end, where the circular space might form a sort of ventilating shaft to this portion, and the library stairs wind round it; but it is very different at the School Board end, where the arrangement leads to awkward angles and corners, and the circular shaft cuts through the centre of the examination-room in a way that is preposterous, and would in itself condemn the plan. The design is a nice one, but somewhat weak in detail, and not drawn in a style to make the best of its effect: there are symptoms, however, of want of time, and consequent hurry in the drawings; but we have seen much better things with the same names to them.

"Felix" (Mr. H. L. Florence), is a very clever and original design, by no means unsuitable for its position. It is "Classic, freely treated," with rusticated pilasters and circular-headed windows between, in the centre portion, and larger circular windows in the wings filling up the space to the main cornice; in the centre portion, the wall above the windows and pilasters, which carry a light sub-cornice, is filled up with panelling. Above the cornice are semi-circular dormers, piquantly but not quite satisfactorily treated. The roofs form part of the design. The plan presents nothing special for comment,—the examination-room is treated in an effective manner,—but as a specimen of some novelty of style and treatment this design merits mention.

Some few others, which have no special point for commendation, we pass over it. As a whole, the designs were an interesting set, and showed here and there an unusual degree of cleverness, unfortunately thrown away. It is much to be regretted that some good designs have been thrown out of court, and that the real advantage of calling in a professional referee has been to a great extent nullified by the committee anticipating part of his office; in their mode of doing which, however, they must have the credit of having evinced a laudable spirit of Christian charity and brotherly feeling towards their fellow-townsmen among the competitors.

* The author of this design, Mr. Robson, is the salaried architect of the London School Board, and we are called on to inquire whether or not these drawings have been prepared with the assistance of the staff provided for Mr. Robson at the public expense. This we do with some emphasis. Correspondents suggest that Mr. Robson ought to have quite enough to do in the proper discharge of his public duties without competing with his less favoured contemporaries.

THE GIBSON GALLERY.

RATHER tardily the Gallery required by Gibson for the reception of his works, as a condition of their bequest to the Royal Academy, has been completed, and was opened to the public on Monday last. The first impression of most visitors will probably be the same as our own: that the room is not large enough for the works collected in it. They are crowded together in a manner which confuses the eye, and in every sense, practically as well as æsthetically, quite precludes an abstracted contemplation of any one work. The small bas-reliefs are too high above the eye to be well seen, and the colossal Mars, which is placed in the centre of one side of the room, cannot be seen in front view from any point sufficiently distant to take it in at the proper angle. In other respects the room falls short of what we might have expected, and very far short of what might have been done. It is simply an oblong apartment, with walls coloured a deep red, a rather commonplace tiled floor, and good wood fittings (doors, architraves, and skirting), in rather handsome style. Around this room are ranged the works, marble and plaster, on sham marble pedestals of different heights, tints, and sizes, in most admired disorder; and the bas-reliefs in plain wooden frames or brackets against the wall above. The lighting is good, and the general colouring of the room such as not to distract the eye. But there is not the faintest attempt to design a room suited to the particular works which it was to contain, or to give any effectiveness of arrangement or background to the statues. They convey the idea of being miscellaneous works sent for temporary exhibition, and therefore necessarily crowded and on miscellaneous-looking pedestals. In the sculpture-room of the annual Academy exhibitions this heterogeneous kind of jumble, however one may regret its effect on the works, cannot be helped, as no one knows beforehand what will be sent. But here was a collection of designs which have long been in the hands of the body to whom they were bequeathed, which therefore might be perfectly well classified; the precise size and shape of each, and the space it would occupy, were known; and yet, in planning a room on purpose for them, not the slightest special arrangement has been made for them, not the slightest appearance of the room having been designed for these particular works: an oblong room has been built and the statues put round it to take their chance, the only special treatment to which the mind of the Royal Academy has soared being apparently the provision of pedestals of two or three different heights and of two different tints of marbling. We venture to say it was not this kind of gallery that Gibson contemplated when he made his bequest.

It may be replied that economy has been the stumbling-block to the provision of a more suitable gallery; and that argument, unanswerable from a certain point of view, it is not, at all events, our business to answer. Apart from that, it is not difficult to see how the Gibson statues might have been far better placed than they are. One or two arrangements suggest themselves at once. The gallery might have been planned in two comparatively lofty compartments, in one of which the large works in marble could have had place, and in the other those in plaster, so as not to injure the effect of the latter so much by bringing them into immediate contiguity with the finer material. There should have been nothing so paltry as irregularly-shaped pedestals of sham marble placed against the wall, but a continuous stone daïs or podium round the sides, which might have been architecturally designed so as to give the varying heights required, by foresight and not by accident. It might be impossible, and would probably be undesirable, to place all the statues in niches, but for those which seemed most to require such a framing niches might have been formed, which, occurring at intervals in the wall, would have given a motive for the architectural design. Between these two imaginary chambers might have been a lower one, the vestibule to both, on the walls of which, not stuck about irregularly, but in panels specially designed for them, the smaller bas-reliefs could have been arranged. Or another principle might have been to have a longer room, to arrange the large works along one side of it, the marble ones in niches and connected with the architectural design, the plaster ones standing separately; the spectator placed under a lower ceiling with no light through it, and looking through a low range of columns at the statues: thus the disagreeable effect of the top-light would be kept from the spectator's eyes. The bas-reliefs might have gone on the wall behind the colonnade, with a special light provided for them, which could easily be done. In both the supposed cases the works on a small scale would be separated from those on a large scale, and the marble works differentiated from the plaster. Surely it would have been worth while for the central Art Society of the nation, with all its wealth and prestige, to have taken the opportunity of making some little attempt to solve the problem of a successful sculpture gallery, under the peculiarly advantageous circumstances of knowing exactly the limit of what they had to provide for.

That the present room is not such as Gibson contemplated may perhaps suggest the reply that the importance of the gift was exaggerated in his own eyes; that he had over-rated his own place in art, as his own friends and admirers, and the public in general, in fact, certainly did over-rate it at one time. At the time of his death, Gibson's fame had been a good deal questioned and weakened in this country; partly, perhaps, owing to the unfortunate turn which he took towards tinted statuary; an idea which, as he applied it, has never won the suffrages of the most thoughtful critics. Apart from this, too, he had come to be regarded, in a society no longer satisfied with Classic ideals, as a mere modern reproducer of Greek art. It is known that he himself held the maxim that the Greeks could do no wrong in art; so that when the idea was promulgated that Greek statuary was coloured, Gibson did not think of asking "Were the Greeks right in doing this?" but immediately adopted the conclusion, "This is right, because the Greeks did it,"—of course a mere begging of the question. But it is gratifying to feel that, in contemplating Gibson's collected works and casts, even under the disadvantageous circumstances we have described, the result is to bring us back to the conclusion that the sculptor's fame has a more solid basis than has recently been allowed; that the limits of his ideal in the art were less narrow than we have permitted ourselves to think. Gibson's latest works were not his best, it must be admitted; his "Venus," even (as it is in the Academy collection) without the objectionable tinting, adds nothing either in finish of modelling and perfection of bodily form, or in artistic conception, to what other sculptors, ancient and modern, have given us as the ideal of the goddess of beauty. His tinted "Hebe," with the blue eyes and unimpassioned features, which was exhibited at one of the winter loan exhibitions, is disagreeably doll-like, although the arms and hands are beautifully modelled. The tinted marble loses its characteristic crystalline surface, and reminds us of the soapy-looking *jade* in which Indian carving is often executed. But other classicalities are not so devoid of life and character as these. His "Paris" holding the apple, the easy voluptuousness of the figure heightened by the peculiar head-dress, half-womanish in appearance, is a fine epitome of a legendary character. Much thought has preceded the modelling here; and the same impression is created by the figure of the wounded Amazon, and the serious concern of her countenance as she raises her skirt to examine the wound; there is a certain realism rather than mere "antique" style here. There is the same sort of realising intensity in the conception of Bacchus, the large marble figure carrying the

Thyrsus, and which is rather Asiatic than Greek in its full contours: this is a work, if we mistake not, less known than a good many of the sculptor's productions. In this, and the "Cupid and Butterfly" that stands next to it, as well as in the better-known "Narcissus" (the first thing popularised as a statuette by the Art-Union of London), Gibson adopts a type of head and of hair which we are familiar with in the Greek figures of Thorwaldsen; a rounder face and fuller and more luxuriant hair than belong to the most usually accepted antique Greek type. The head of the "Narcissus" in this edition of the figure (which Gibson executed repetitions of, as he did of other works) is beautifully finished. But superior to any of these in conception and attitude is the "Sleeping Shepherd," of which the model only is in this collection, and which is a more poetic conception than most. We have the model, too, of the "Hylas and Nymphs," of which the National Gallery has the marble, where it is placed so that no one can properly see it. We have always been disposed to think this Gibson's finest work; the Nymph on the left of the spectator could hardly be surpassed for grace of line and movement in the long shapely limbs and beautiful (one might say "aristocratic") turn of the neck and head.

Of the bas-reliefs some remind one a little too much of Flaxman, to the advantage of the latter: "Phaëton trying to drive the Horses of the Sun," however, is a composition of great spirit and beauty. The companion work, "The Hours leading the Horses of the Sun," is, in the action of the figures, too strongly reminiscent of Guido's "Aurora." But what pleases and at the same time vexes one a little in the bas-reliefs, is the evidence some of them give of Gibson's power of treating subjects of purely human interest, with the pathos and feeling of modern life. It is vexing, because one cannot help feeling he might have been better employed on more of such works, than in turning out replicas of "classic" figures. Indeed, some of the latter half unconsciously take a form capable of a modern rendering. A plaster figure of "Venus and Cupid," life-size, for instance, where the goddess raises the little boy to kiss him, might as well be called "Mother and Child": and why not? Surely as large and universal a subject. But in some of the bas-reliefs Gibson seems to show a peculiar felicity in handling subjects in connexion with real life, and bringing them into the domain of purely sculpturesque art. The monumental figure of "Mrs. Henry Sandbach," for instance, in low relief, but with the head slightly turned so as to come out in higher relief, is beautiful: the expression and pose are perfectly real and unforced; the hands rest one over another in the most natural and expressive attitude; the drapery is so closely assimilated to modern costume as to seem quite in keeping with realism; yet the whole falls into the most pure and sculpturesque pose and lines, so that the claims of feeling and of artistic propriety seem perfectly balanced and satisfied. There is the like kind of excellence, the like seriousness of expression, combined with sculpturesque breadth of treatment, in the portrait bas-relief of "Mr. William Earle." These portraits, and one or two busts in the collection, are those of members of families whose names have been long connected with Liverpool, in which town Gibson found his first encouragement, was brought up, and whence he set out, with the help of appreciative friends, for Rome. His larger portrait statues are less successful, because more mannered. In them he adhered to the "blanket" style of drapery which recent taste has wisely discarded in the representation of men of the present day; in the smaller bas-reliefs he seemed to have felt more at liberty to break through conventionality. If the collection cannot be looked at with all the interest and enthusiasm which the genius of Gibson was once supposed able to command, it is well worth while to go up the stairs at Burlington House, and revive impressions of his works in this collective form; we only wish they were placed in a manner more advantageous to their effect.

Projected Tramways.—The Clerk of the Islington Vestry has received preliminary notices with reference to further tramways in that parish. One line is in Holloway-road, St. Paul's-road, Canonbury-road, Canonbury-square, Essex-road, New North-road, and Balls Pond-road. Another line would be in Caledonian-road, and Camden-road.

ON THE CHIEF SYSTEMS OF SEWAGE DISPOSAL NOW IN OPERATION.

The attention of the Local Government Board having been directed to the great difficulties experienced by sanitary authorities in devising means for the disposal of the sewage of their districts; and, having regard to the frequent applications which are made to them for advice on this subject, deemed it expedient that special inquiry should be made under their direction into the practical efficiency of the chief systems of sewage disposal now in operation, and for which loans have been sanctioned by them.

So they appointed Mr. C. S. Read, M.P., one of their secretaries, and Mr. Robert Rawlinson, C.B., their chief engineering inspector, in conjunction with Mr. Smith, the secretary to the late Rivers Pollution Commission, as their assistant, to visit a limited number of localities in which the processes in question are in operation, and report fully thereon to the Board.

These gentlemen accordingly visited Edinburgh, Wrexham, Chorley, Blackburn, Doncaster, Harrogate, Wolverhampton, Leamington, Warwick, Rugby, Banbury, Bedford, Croydon, Norwood, Reigate, Worthing, Aldershott, Romford, Tunbridge Wells, Cheltenham, Merthyr-Tydfil, Barking, Norwich, and Enfield; Kendal, where the downward intermittent principle is carried out; Leeds, Bolton, Coventry, Tottenham, Edmonton, and Hertford, where sewage is treated by a chemical process; Bradford, Birmingham, and Luton, where sewage-sludge is precipitated by the addition of lime; and Halifax, Rochdale, Salford, and Manchester, where the pail system is partially used for dealing with excreta. They also visited Leyden and Amsterdam, where the pneumatic system is partially in operation; Paris, where only a portion of the sewage is utilised in irrigation; and Brussels and Berlin, where the sewage is about to be disposed of in irrigation, and their report is just now issued,* and contains the following

Conclusions.

"1. That the scavenging, sewering, and cleansing of towns are necessary for comfort and health; and that, in all cases, these operations involve questions of how to remove the refuse of towns in the safest manner and at the least expense to the ratepayers.

2. That the retention for any lengthened period of refuse and excreta in privy-cesspits, or in cesspools, or at stables, cowsheds, slaughter-houses, or other places in the midst of towns, must be utterly condemned; and that none of the (so-called) dry-earth or pail systems, or improved privies, can be approved, other than as palliatives for cesspit-middens, because the excreta is liable to be a nuisance during the period of its retention, and a cause of nuisance in its removal; and, moreover, when removed leaves the crude sewage, unless otherwise dealt with by filtration through land, to pollute any watercourse or river into which such sewage may flow. We have no desire, however, to condemn the dry-earth or pail systems for detached houses, or for public institutions in the country, or for villages, provided the system adopted is carefully carried out.

3. That the sewering of towns and the draining of houses must be considered a prime necessity under all conditions and circumstances, so that the sub-soil water may be lowered in wet districts, and may be preserved from pollution, and that waste-water may be removed from houses without delay; and, that the surfaces and channels of streets, yards, and courts may be preserved clean.

4. That most rivers and streams are polluted by a discharge into them of crude sewage, which practice is highly objectionable.

5. That as far as we have been able to ascertain, none of the existing modes of treating town-sewage by deposition and by chemicals in tanks appear to effect much change beyond the separation of the solids, and the clarification of the liquid. That the treatment of sewage in this manner, however, effects a considerable improvement, and, when carried to its greatest perfection, may in some cases be accepted.

6. That so far as our examinations extend, none of the manufactured manures made by manipulating town refuse, with or without chemicals, pay the contingent costs of such modes of treatment; neither has any mode of dealing separately with excreta, so as to defray the cost of collection and preparation by a sale of the manure, been brought under our notice.

7. That town-sewage can best and most cheaply be disposed of and purified by the process of land irrigation for agricultural purposes, where local conditions are favourable to its application; but that the chemical value of sewage is greatly reduced to the farmer by the fact that it must be disposed of day by day throughout the entire year, and that its volume is generally greatest when it is of the least service to the land.

8. That land irrigation is not practicable in all cases; and, therefore, other modes of dealing with sewage must be allowed.

9. That towns situate on the sea-coast, or on tidal estuaries, may be allowed to turn sewage into the sea or estuary, below the line of low-water, provided no nuisance is caused; and that such a mode of getting rid of sewage may be allowed and justified on the score of economy."

The statements of the Commissioners accord so nearly with the views which have been set forth and urged in this journal that little comment will be necessary. We shall content ourselves with giving the pith of the more important parts of the Report, commending the whole, with its appendices, to the serious attention of all who are interested in the subject.

With respect to the laboratory value of town refuse and of sewage, or of the manipulated solids of sewage, they have not found a single case where it is sold at a profit; and, as a consequence, there have been local disappointment and accumulations of several thousands of tons of manufactured manure, asserted to be worth from one to several pounds sterling per ton, which prices are not realised; consequently there are these vast heaps encumbering the premises where manipulated. In the case of town sewage, its unceasing flow and the great volume of water to be disposed of day by day detract from the undoubted manurial value which there is in it, so that sewage containing ammonia, representing a manurial value of 2d. per ton, has to be given away, or has to be wasted into the sea. With respect to the solid manure made from town refuse and extracted from sewage, its bulk and weight reduce its value, and as, like sewage, the production goes on all the year round, it must be heaped up until farmers can be induced to remove it,—the inducement for them to do so being a price far below the cost of production.

Town Scavenging.—Town refuse, both fluid and solid, must be got rid of, and the more completely and rapidly the process is effected the better will it be for the inhabitants. The cost of any process should, however, be a secondary question,—always provided that due skill has been and is used in devising the local works, and proper care has been and is exercised in supervision and labour.

Sewage not Profitable to the Extent estimated.—In 100 tons (224,000 gallons) of sewage, having the equivalent of eight grains of ammonia to the gallon, the ingredients are estimated as having a manurial value of 17s. 7d. The suspended matter, which will subside when at rest, or which chemicals will assist to precipitate, is worth 2s. 2½d.; other dissolved matter which remains in the clarified water being worth 15s. 4½d. This makes the value 2·1 penny per ton, or say 2d. per ton; the Royal Commission (1858 to 1865) accepting this estimate of 2d. per ton after a set of exhaustive experiments fully recorded in their three Reports, came to the conclusion that a farmer having to take and dispose of sewage day by day, all the year round, would not give more than a ¼d. per ton, if even this could be afforded. An examination of the abstracts in this Report will show that sewage has very generally been used in irrigation at a loss. Although this estimate appears so favourable, we find that it fails to be commercially productive in practice, and we may repeat that no chemical or other treatment of town sewage with which we are acquainted is a commercial success. The suspended solids may be precipitated, and the sewage so far clarified by these processes; but the sewage is not purified, nor does the sludge appear to be increased in value as a manure so as to command a sale sufficient to pay the costs of production. The pail system, as practised at Rochdale and other places, does not produce a solid manure of sufficient value to repay the contingent expenses, and command a ready sale.

Sewage not to be stored in Cesspools.—Sewage should not be stored in cesspools beneath houses, or near to houses within a town; neither should it be allowed to rest stagnant in badly formed

* London: Eyre & Spottiswoode. 1876.

sewers, nor, indeed, in any sewers; but all waste water and excreta should pass to the drains unperceived, and should then flow in an unceasing stream; and, if practicable, at once over and through land properly prepared for its reception and agricultural use.

Mechanical Power of Water.—Water is a purifier, a cleanser, a dissolver, and a mechanical power, and will carry along down an incline the solid ingredients of town sewage, with road *detritus*,—such as grit and silt; the moving power of water being in proportion to the volume, the vertical depth, and the gradient down which the flow is directed. Flushing by volume and head, artificially formed, will remove *detritus* from sewers of low gradients where accumulation may have taken place. A velocity in the sewage of 2 ft. 6 in. per second will remove any solids likely to be passed into drains and sewers.

Sewage Irrigation proved not to be Injurious to Health.—There is no record of any special outbreak of disease at or near the sewage farm. The men working on the land and amongst the sewage are reported to be healthy, the men cutting the grass are healthy, and the cows fed upon the grass are also as healthy as other cows, producing wholesome milk; and with respect to tapeworm, the medical men who attend the Edinburgh hospitals do not find any exceptional excess of this disease amongst their cases; but, on the contrary, less than in other hospitals. The Craigentinny meadows were made the subject of an exhaustive inquiry by the War Department during the time that Lord Macaulay was member for Edinburgh and Parliamentary secretary for that department. Official inquiry was made by army medical officers, who took the returns of health and mortality for twenty years back from barracks situate in different parts of Great Britain, where troops similar in numbers and performing similar duties had been quartered, and these returns were tabulated, the results obtained proving that the barracks adjoining the Edinburgh sewaged meadows had the lowest sick and death rate in the list, so that the allegations against the Craigentinny meadows fell to the ground. It must not, however, be supposed that rough-and-ready sewage irrigation is advocated, as the evidence should only be taken as proving that the application to land of putrid and crude sewage in the most gross form does not necessarily breed a pestilence, though such mal-arrangements may produce an offensive nuisance which ought not to be continued.

The Pneumatic System.—One of the most complicated and costly processes for dealing with the solid of human excreta (not with town sewage), is the system known by the name of the inventor, Capt. Liernur. The pneumatic system has been partially introduced at Leyden, Amsterdam, and Dordrecht, where they have seen it working. They agree that the pneumatic system is ingenious, but it is complicated in its construction and working arrangements, and consequently it is liable to derangements which are sometimes difficult to mend. They do not know one English town in which the apparatus, if adopted, would be other than a costly toy. As may be imagined, when the nature of the arrangements and complications are considered, the pneumatic apparatus gets out of order, the slightest crack in any pipe or pipe-joint will reduce the force of the partial vacuum, and even where all the apparatus remains sound the closet-pans may not be emptied; and, in fact, neither the pipes nor the pans ever are entirely emptied; the power of air and water to remove solids through pipes being as their relative weights and velocity, and air is to water, by weight, about as 800 to 1.

Town Sewage: Its Treatment and Characteristics.—All chemical treatment of sewage, by patented processes or otherwise, aims at deodorisation; that is, a clarification and purification. The processes are reported to take from sewage turbidity, colour, and scent; but no such process has ever restored sewage water to its original purity, though most of the suspended solids may have been removed, the salts of sewage remain, and generally some of the chemicals, mixed with the water. The only safe way to utilise sewage is by a daily application of it to land whilst it is comparatively fresh, as at Bedford, Aldershott, Carlisle, Doncaster, Chorley in Lancashire, Leamington, Rugby, and other places where sewage irrigation has been established and the sewers transmit in a continuous stream the daily volume. Receiving sewage in tanks to abstract the solids will add to the impurity and offensiveness of the fluid if there is any lengthened retention, or if the tanks are not rigidly cleansed at short intervals, so as to remove any of the leaven of putridity from the surfaces. All sewage-tanks should be simple in form and construction; the material should be either of a vitreous character on the surfaces, such as glazed bricks, or of Portland concrete; no sewage-tank should be arched or vaulted over. There may be an open-sided shed louvred at the ridge, and the area of land occupied by both yard and tanks should be fenced in. The sludge separated from sewage contains from 80 to 90 per cent. of water, and if deposited on the surface in this state it will not dry in any reasonable length of time, but will skin over and remain wet. Artificial drying is not practicable on account of the cost. Mixing with dry ashes and street sweepings appears to answer best.

Unventilated Foul Sewers and Sewage Tanks Dangerous.—Foul sewers and foul vaulted sewage-tanks, if unventilated, will contain carbonic acid gas, and will give off sulphuretted hydrogen, both of these gases being generated from decaying vegetable and animal matters. A complete and perfect disinfection of sewage and sewage deposit by the addition of any known materials, solid or fluid, would be so costly as to be impracticable, and the materials so disinfected would have no equivalent increase in commercial value. To completely disinfect one cubic foot of sewage-sludge and excreta would cost, in the materials, about 1s., or 27s. per ton.

Details of the Modes of Dealing with Sewage.—The application of town sewage to land is shown in this report to be the cheapest mode of disposing of it. The first cost of purchasing land for a sewage farm, of preparing this land to receive and filter sewage, and of constructing the necessary works and machinery, may require a rate in aid during the term allowed for repayment of the capital; but in most cases, where the sewage can be applied at a reasonable cost, by gravitation, so far as our investigations have been extended, there will be an available income from the farm at the termination of the temporary debt. Sewage irrigation should in all cases be practised where there is land to be obtained, and the prospect of a balance of income in its favour, as sewage-grown grass is wholesome, and when used for dairy-cow feeding produces good milk, and affords employment to a large number of labourers. The application of sewage to land need not in any case produce a swamp, nor generate malaria, as the volume of sewage applied at any period should be delivered in a thin film, such as the land can absorb at once; that is, within a few hours of its delivery. Sewage should not in any case drench the land to which it is applied, as is usual with water irrigations, where extensive areas are laid under water for several days at a time. The volume of sewage from any town being known, the sewage-farm should be from 10 to 15 per cent. greater than the area required for one week, and no more than one-tenth of the area of a sewage-farm should ever be under sewage at one time.

Rent of Land used for Sewage Irrigation Excessive.—At Croydon some 515 acres of land are under irrigation, the population being about 56,000. This is at a rate of nearly 10 acres for each 1,000, or about one acre to 100. The land in use had an average rental of 26s. to 30s. before the Croydon Local Board of Health required it; the rent now paid averages 10*l.* per acre per annum.*

Sewage Farms.

A sewage-farm should be so laid out and managed that a sufficient area of land shall be under sewage every day in the year, winter and summer; and as town-sewage is seldom below 40 degrees in temperature, irrigation can be carried on. And if sewage should freeze on the surface of land which is without crop no injury is done, and when thaw sets in absorption takes place. The mode of laying out a sewage-farm cannot be fully described in this report, but see the maps and diagrams for partial elucidation. As a rule it may be stated that the works should be simple in character, that they may be cheap in construction. Good examples may be seen at Doncaster, at Bedford, at Leamington, and at Aldershott. Permanent sewage-carriers should contain the land and be laid so as to be level, the grade of the land being provided for by vertical steps, regulated by stops, overflows, and wash-outs; side-junctions to be provided on the lower sides of the carriers to draw off sewage for distribution over the land. If a permanent sewage-carrier is laid with a fall, it will be impracticable to block the flow at any point and preserve an even surface, as sewage blocked in a sloping channel would flood over the point of stoppage; hence the necessity for level lines at the surface. Tributary-carriers may be made by a plough, the cross-sectional form and the gradient being suited to the character of the soil; the larger carriers may have a grade of 1 in 400; the smaller, or "herring-bone lines," may have a grade of 1 in 300. These temporary carriers will be broken up with the plough at intervals, and be renewed as required.

Area of Land required for a Sewage-Farm will depend on Local Conditions.—The area of land required for a sewage-farm will be governed in a great measure by the character of the subsoil, as if it is very porous or otherwise; as also by the volume of sewage and subsoil-water in proportion to the population. At Doncaster, with a sewage-farm of 264 acres, and a population of 20,000, the average daily flow of sewage being about 600,000 gallons, 120 acres of land of a light sandy and open character have for three years absorbed the entire sewage, only about five acres at any one time being under sewage, and one acre has occasionally absorbed the entire volume of one day. At Croydon about one acre to each 100 of population has been provided. For a population of 60,000 there are about 15,000 water-closets in use; or one to four of the inhabitants. There are the contents of 25 water-closets in 20 tons of sewage each day; or, about 7,000 tons of sewage per acre per annum. Small fields enclosed by large fences will be detrimental to sewage farming; land which is open and without inner fences, having a uniform surface and gentle slope to the south, will be most advantageous. Italian rye-grass is probably in all respects the most advantageous crop to be grown under sewage, as it absorbs the largest volume of sewage, occupies the soil so as to choke down weeds, comes early into the market in spring, continues through the summer and autumn, bearing from five to as many as seven cuttings in the year, and producing from thirty to fifty tons of wholesome grass upon each acre. It is most profitable for feeding milch cows. A dairy and a sewage-farm should, therefore, wherever practicable, be associated. A portion of each farm should be specially deep-drained and prepared for land-filtering the sewage during winter or wet weather.

Drains and Water-closets.—Drains must not traverse the basements of houses, but must commence at an outside wall and be fully ventilated. Water-closets must not be within the body of a house, but against an external wall, the soil-pipe being ventilated above the roof, with an open top, so as to ventilate fully, the water-closet room having full and free ventilation at the ceiling. The main sewers must be true in line, having smooth and even gradients, and be fully ventilated. The water supply must be constant and abundant, laid on to each house and to each water-closet; contamination by sewage-gas within dwelling-houses will then be practically impossible. Sewage is the waste water from towns, and the polluted water and liquids from manufactures. Where the privy, cesspit, and cesspool are retained the corrupted fluids from these pass into the sewers. Sewage is injurious in proportion to its age and putridity. Fresh sewage, if removed day by day, does not, in that time, become putrid; and, consequently, is not so injurious to health as putrid sewage is. Where water-closets are in full use, as in London (about 700,000), in Croydon (15,000), in Leamington (about 8,370), in Harrogate (about 1,620), in Cheltenham (about 8,500), and in like proportion in some other towns, the entire of the polluted fluids, with the effete matter of the water-closet, passes at once to the common outlet. The London sewage is at present wasted into the river Thames; but at Croydon, Leamington, Harrogate, and Cheltenham the sewage is purified by irrigation, in each case producing useful crops of grass and vegetables. Where towns are situate on the sea, or on the estuaries of tidal rivers, sewage is wasted,—as at Brighton, at Liverpool, at Sunderland, and even at Edinburgh, where the Water of Leith intercepting sewer discharges the sewage from a population of about 100,000 by a cast-iron outlet direct into the Frith of Forth. When sewage shall be wasted in preference to utilising it, must depend upon local conditions. The waste of sewage must not, however, produce a nuisance injurious to health, and this wasting of it certainly ought to be cheaper than using it under any of the precipitating and

* A sewage-farm will not bear a rent of 10*l.* per acre. About half this sum is as much as should be paid if the income is to cover the expenditure.

chemical or irrigating processes at present known.

Clarification of Sewage.—Clarification by deposition in tanks and treatment by chemicals remove *detritus* and suspended matters from sewage, but, as explained, will not fully purify the fluid. This removal of the solids will, however, be an advantage, as a vast mass of matter liable to choke the bed and banks of a stream or river will be removed, which, when allowed to accumulate, becomes putrid and offensive. The gross cost of purifying sewage by irrigation is, per ton, at Doncaster $\frac{3}{44}$ of a penny, at Bedford $\frac{3}{44}$ of a penny, at Leamington $\frac{3}{44}$ of a penny, at Cheltenham $\frac{1}{44}$ of a penny, and at Banbury $\frac{4}{44}$ of a penny. These farms may be accepted as fair samples of thus utilising sewage. The use of sewage in agriculture is comparatively new, and the best mode has not in all cases been practised. They, however, indicate Aldershott, Bedford, Doncaster, Leamington, Wolverhampton, and Wrexham as good examples. At Leamington Lord Warwick leases the sewage to be used upon a portion of his estate, and at Aldershott, Wrexham, and at Doncaster the sewage and the land are leased, and are worked independently by gentlemen of intelligence, who make such experiments as they think proper, and vary their modes of culture as best suits the sewage, the land, and the crops to be grown. The attempts to economise in town scavenging and sewering by removing human excreta separately has been a failure; by the dry-earth system, the Goux system, the Rochdale pail system, or by any other of the patented systems, so far as are known to them; the local costs have been largely increased, and the local nuisances also, in proportion to the time of retention of the excreta before removal; there is also the inconvenience suffered by trespass on the privacy of the household.

Details as to Irrigation by Town Sewage.—As they recommend the application of town sewage to land, they at the same time wish to guard against some extravagant expectations of the agricultural benefits it will confer, which are held and advocated by a few zealous and enthusiastic theorists. The continuous application of town sewage to all soils is by no means an unalloyed benefit; as in some cases and seasons, and especially upon clay land, it may be rather injurious than otherwise. Very few crops are actually benefited by the direct application of sewage upon a stiff and retentive soil; indeed, Italian rye-grass, cabbage, and mangold-wurtzel seem to be the only farm crops that persistently flourish upon any soils, heavy, or light, under continual doses of town sewage. No growing crop, save natural grass, should be sewaged during the depth of winter; and for potatoes, turnips, most vegetables, and certainly for all pulse and cereals, the land ought rather to be enriched by frequent irrigation in the preceding season, than treated with sewage when these crops are growing; except in times of great drought, and even then care is requisite. A very limited experience soon teaches us that the purification of a constant flow of sewage, and which is frequently greatest when least wanted on the farm, must bring certain difficulties in its train. The cultivation of sewaged land, for instance, requires more than double the amount of manual labour which is usually employed upon arable land, and more horses must be kept than upon an ordinary farm. The amount of capital, even where the produce is sold off as soon as grown, must be greatly in excess of that required for the general ordinary cultivation of the soil; while to properly stock and work a sewage-farm upon which the main produce is consumed, quite five times the usual amount of money will be needed. One of the greatest difficulties is to keep the sewaged land clean, as not only does every seed and the minutest portion of a root-weed grow, but sewage itself often contains the seeds of numerous weeds which have been washed down from the fodder and straw of stables and cowhouses in towns. There can be no doubt now, after the experience of some years, that the land best adapted for sewage irrigation is a warm friable loam. The only instance in which town sewage irrigation is a decided financial success is that of the Craigentinny Meadows, at Edinburgh. These meadows are, however, in reality for the most part only a deposit of sea sand, washed and blown from the adjoining estuary, and the main produce grown is nothing more nor less than luxuriant couch-grass. The enormous amount of coarse forage which is produced from such a naturally sterile soil shows the fertilising properties of town-sewage, and also points still more distinctly to the fact that a sewage-farm should consist of land through which the sewage can readily filter. It is strange that although deluges of crude town-sewage have been poured upon portions of these Craigentinny Meadows for 200 years, the discolouration of the sandy soil only extends a few inches below the surface, and that at the depth of a foot the sand appears as bright and clean as that upon the adjoining seashore. There seems no doubt that even the lightest soils should have a few deep underdrains, as at Doncaster, and Heathcote Farm, Warwick, so as to prevent the sewage-water from lodging in the subsoil. All land of medium staple should be thoroughly underdrained, and clays require the drains to be multiplied, so that the interval between them shall not be more than 15 ft.; and care should be taken that the drains are so formed that no sewage-water can flow vertically into them. To prevent this, upon the top of the drain-pipes, a foot of the most retentive portion of the soil should be damped or puddled, and tightly rammed down, so that the sewage-water after percolating through the subsoil shall flow horizontally into the drains, and not rush into the drain-pipes through the loose mould or cracked clay directly from the surface. As most sewage-farms are at present under the control of ever-changing town councils and local boards whose members must as a rule be ignorant of practical agriculture,—and whose theories upon the subject may be wild and visionary,—is it surprising, the Commissioners ask, that such poor returns have hitherto resulted from the application of town-sewage to the growth of crops? Disappointment has been expressed at the poor financial results of sewage-farms. Agriculture is never a specially lucrative business, and during the last few years it is probable that strictly accurate accounts would prove that very little profit has been derived from the ordinary cultivation of arable land. Farms to which town-sewage is applied have invariably many unfavourable circumstances to contend with. The rent, except where the local authority has land of its own, is certain to be extravagant; the application of sewage is often too costly; the management is frequently changeable and faulty, and the prejudice against the produce of the farm is, in some districts, obstinate and widespread. But they, nevertheless, arrive at the satisfactory conclusion that where a fair rent is charged for suitable land, the sewage cheaply and regularly delivered, and a good market is close at hand, there is no reason to doubt that the return for capital judiciously expended upon sewage-farms will produce a higher rate of interest than the money invested by the majority of the tillage farmers throughout the country.

AGRICULTURAL PROGRESS AND LEGISLATION.

THE INSTITUTION OF SURVEYORS.*

The Agricultural Holdings Act was the most prominent of our discussions during the last session, but those upon the Valuation Bill were scarcely less important. That Bill was withdrawn owing to the pressure of Parliamentary business, in order to be renewed in the coming session, and that discussion was understood to have attracted the attention of some at least of those who are responsible for legislation. Whatever its provisions may be, the new Bill relates to a question of so much importance that it can hardly fail to be one of the subjects to occupy your attention in the coming session; I trust that county boards may be adopted.

The working of the Sanitary Acts, and the disposition of sewage, is another matter which requires much consideration. The protection of the domestic life and health of the people has been recognised only recently as a fit matter for legislation, notwithstanding that few subjects can compare with it in importance. It ramifies in so many directions—the pollution of rivers, and consequent defilement of the waters of the towns; the utilisation of town sewage; the frequent contamination of wells by the proximity of cesspools and house drains—that the provisions of these Acts are constantly recurring in practice.

The Commons Inclosure Act of last Session was probably the best that could be passed: certainly was better than none at all. Public opinion, which thirty years ago applauded the man who made two blades of grass to grow where one grew before, is now exercised in keeping common lands unimproved. Except in the neighbourhood of towns, I know no common which is not a nuisance to the vicinity. It is the abode of a vagrant, lawless population, whose miserable hovels are the disgrace of the neighbourhood, and whose presence is its terror. The suburban common and village green undoubtedly require to be preserved for the sake of recreation and enjoyment, the proprietors being properly compensated for their rights; but the commons which lie at the backs of cultivated parishes, far away from the villages, and frequently at considerable elevations, require no protection. A few miserable sheep maintain an unhealthy existence upon the poor and starved herbage, while the well-grown sheep of the adjacent cultivated farms are jealously kept away for fear of infections. The whole productive power of the land is probably less than one-third of its power if in severalty. Such a common has been supposed to belong to the lord of the manor and the commoners, and to be as much private property as an enclosed field, subject like the field to roads and pathways for the public. The recent Act contains a section enabling other persons, besides the lord and the commoners, to take steps to prevent any inclosure of portions of the common, by action in the County Court, subject to an appeal to the Courts above, and this provision introduces an entirely new element in the inclosure of commons.

The Artisans' Dwellings Act was fully discussed in this room. Parliament wisely left the initiative to the persons locally interested, but in its desire to provide a prompt remedy for neglect, it has given its sanction to somewhat summary processes for the purchase of property. There may be reason in withholding the usual allowance for compulsion where property has been suffered to become a public nuisance, but it is not so easy to see why an owner of adjacent good and habitable houses, required for the full development of the improvement scheme, should be subjected to the same provision. If the words "within such area" in the 3rd clause of the Act mean only the area covered by unhealthy houses, the provision may be reasonable; but if they mean the whole block, including neighbouring properties not condemned as unsanitary, but needed to be taken to give completeness to the scheme of improvement, then the owners of good houses are punished for their proximity to bad ones. It is stated that a case involving the question of giving the allowance for compulsion upon healthy houses of large value has actually arisen, and the owner of this valuable adjacent property is waiting for the decision. The right of petitioning Parliament against any scheme is reserved, but subject to the liability, on the part of the appellant, of being saddled with the whole of the costs should a *majority* of the committee present be of opinion that the petition is (not vexatious, but) not justified by the circumstances. This is a risk which few petitioners would care to incur, and renders the right of petitioning of little value. This power of awarding costs was conferred on a Committee of Parliament so recently as 1865, by the 28 Vict., cap. 27, and was "exercisable only where the Committee shall unanimously report that the promoters of a Bill have been *vexatiously* subjected to expenses." The difference between a majority of a Committee deciding that an opposition is not justified by the circumstances, and a Committee deciding unanimously that an opposition is vexatious, is very great.

One of the most remarkable events from our point of view that has occurred during the year has been the publication of what is known as the Domesday Book of 1873. Collated as it is from written records in the care of the Assessors of poor-rates, it contains many inaccuracies and many items,—such as gas-works, railways, and iron works,—which are misleading, culminating in the river Wear Commissioners with three acres of land and a rental of 20,609*l.* per annum. Its appearance adds to our admiration of the fulness and completeness of the Domesday Book of William the Conqueror. Eight hundred years have elapsed since the king's scribes passed through the length and breadth of that same England (which has never since been diminished), and recorded not only the proprietorship of the land, but, as was said at the time, every horse and pig that was maintained upon it. Information of this latter nature is now given yearly in the Agricultural Returns, which afford such full and valuable details of the acreage under each kind of corn and green crops, and of pasture land, and of every kind of stock which is maintained by our alternate system of husbandry. No inter-

* From the opening address by Mr. Edmund James Smith, president, at the ordinary general meeting, November 13th.

mediate record exists relating to the whole country. As regards the properties of most of the bishoprics and chapters, a complete account was obtained about 1650, and the renewal of leases septennially for the succeeding 200 years would afford much information as to the rise and fall of rents in that period. It is probable that the Oxford and Cambridge colleges would be able to supply the same information as regards their property, and some principal landowners must have continuous rentals of their estate; but in future no doubt the record will be revised not less frequently than each quarter of a century.

The recorded owners in the original Domesday are stated as 5,000 out of a population probably of 3,000,000, and the new Domesday gives about 1,000,000 of owners, three-fourths of whom are the possessors of not more than an acre, leaving possessed of more than one acre about one quarter of a million out of a population of 20,000,000, of whom one-half inhabit towns and invest very little in land. In Northumberland the ownerships over an acre average 500 acres each; in Wilts they average 200 acres. In the rest of England they average from 100 to 150 acres. In the counties of Cambridge, Chester, Derby, Gloucester, Lancaster, the ownerships average more. In Somerset, Stafford, Surrey, Worcester, and West Riding of York, they average about 10 acres, and in Middlesex 50 acres. It is curious on reading over the names of the untitled nobility in the several counties of England, to note how many have occurred in the chronicles of Crecy, Poitiers, Agincourt, and the French wars, and how many more distinguished themselves in the histories of the internal affairs of the country before the reign of George III. Some names, such as Musgrave of Edenhall, take us back to the fairy lore or the unwritten traditions of a high antiquity. Some rest upon success in trade or professional distinction in law or in arms; some upon the distribution of property of the Tudor Sovereigns; and some upon the accidental possession of estates brought by the extension of our towns into fabulous value. Whether the law of entail which secures the estate for the most part against the extravagance and the folly of the direct heir by providing that it must pass in its integrity to the next descendant of the founder, is based upon a better principle than that which divides each estate amongst all the children of the founder, is a question which we need not stop to discuss, but it certainly has the effect of maintaining a long connexion between the family and the tenantry, and secures the latter from the danger of the sale of the estate and its consequent transfer to strangers.

It would repay any one interested in the particular farms described in 1851 by Mr. Caird, to compare their condition at that time with their state under their present occupations. He would find a more spirited husbandry, effective drainage, better buildings, much better cottages, much better wages, and general improvement; but he will rarely find any material increase of rent, irrespective of interest on the cost of improvement. There will be a larger capital employed, and a much larger yearly produce, but the rent will generally have increased barely to the extent corresponding to the capital expended in improvement. The fee-simple value will have materially increased, and, in consequence of the enormous accumulation of capital in the interval, I have an ordinary farm, lying between two competing proprietors, sold at fifty-four years' purchase on the utmost rent obtainable.

Some portion of the increased produce from farming is appropriated to interest on capital expended in drainage, in cottages, or in buildings; some to interest on tenants' increased capital; more is absorbed by increased wages; a portion pays the increased rates and taxes.

The better buildings speak for themselves to the eye; the thorough drainage will hardly be disputed, but a comparison can be made as regards wages more easily than with regard to any other portion of the increased expenditure as compared with 1851. According to a table in page 512 of Mr. Caird's book, the average wages in twelve northern counties in 1851 were 11s. 6d. a week, and in twenty southern counties were 8s. 5d. a week; and it is added that in the preceding eighty years there had been no increase of wages in several southern counties, for instance, in Suffolk and Wilts; and an increase of less than 14 per cent. in the eighteen southern counties mentioned by Arthur Young in 1770.

It was time that wages should increase; and their increase in the twenty-five years since 1851 cannot be taken to average less than 50 per cent. on the rates above mentioned. In Durham and the manufacturing counties the increase is more than 50 per cent. The reaction which has recently set in will prevent the present rates from increasing for many years.

Nor does the increase of 50 per cent. in the rate of wages measure the improvement in the condition of the labourer. All those articles of consumption which may be called home comforts,—tea, sugar, tobacco, &c.,—are reduced in cost some 40 per cent., while clothes and other necessaries are both better and cheaper. The cottage is frequently a little more costly than in 1850, but more comfortable, and in a sanitary point of view generally unexceptionable. The maintenance of close parishes has been rendered useless by the extension of the area of rating, and in consequence the cottage is placed as near as may conveniently be to the labourer's work, and the fatigue of the daily walk to and from his place of labour reduced to its minimum.

One cause of the disproportion, in 1850, between the wages of 11s. 6d. in the north, and 8s. 5d. in the south, was the manufacturing demand for labour in the north; but this was intensified by the operation of the law of settlement which chained the labourer to the parish where he was born. This law was practically abolished in 1865, and only from that date has the labourer been free to take his labour—the only commodity he has to sell,—to any part of the kingdom. This freedom was largely exercised during the demand, in 1873, for more men in the coal and iron districts in the north, many hundreds leaving the eastern and south-eastern counties, and obtaining in the north 21s. a week or more for their labour, instead of 11s. or 12s. in the south. But if the wages were higher the work was harder, and the habits of life quite different from those to which the strangers were accustomed.

A colliery life, even if the man be employed on the surface, is rather a town than a country life. The pit is sunk, and a pit village of probably 300 houses is built very near to the pit. The houses are arranged in streets, and, the population causing a demand for consumable articles, the corners of the streets and perhaps a row of houses in the main road are made into shops. Every man lives under the observation of his neighbours.

Until a few years since, the cost of building a collier's house was barely 50*l*., and it was one story high; the least costly now involve an expenditure of 100*l*., and many of 120*l*., and none are less than two stories. The new collieries have for some time a large proportion of persons of roving and unsettled habits, the refuse of the older collieries and inexperienced strangers; but the colliers in the older collieries are a remarkably orderly set of men; generally Dissenters, for until within a few years the Church of England did not provide any means of worship save at the Parochial Churches, and the Parochial Church was generally miles distant from the colliery. Now, church and school are generally to be found at a new colliery, as well as dissenting places of worship.

In 1851 wheat was 40*s*. a quarter, beef 5½d. per lb., and mutton 5d. per lb. We may now take wheat at 47*s*. a quarter, beef at 10d. per lb., and mutton at 8d. per lb., and such of us as have lived through the panic of 1851, and still more through the distress of 1836, when the year's average price of wheat was 39*s*. a quarter, with barley under 30*s*., and oats 22*s*. a quarter, can but feel that this year's distress, though severe in many districts, does not present the same features or press upon the country to the same extent as in that period in 1851, which has been so faithfully and graphically described by Mr. Caird, in his "English Agriculture." In 1853, the best harvest occurred that has ever been known, and agricultural distress became a thing of the past.

One half of our population is at present fed with wheat imported from distant countries, and that half of our consumption is brought from the Western States of America, or other distant places, at such prices that the other half of our consumption cannot, it is said, be grown so as to be remunerative to the English grower; and suggestions are made for the adoption of a different system of cultivation.

There is a wide difference between panic fear and a grave consideration of existing facts, and the impossibility of growing wheat at a price of 47*s*. a quarter is not to be admitted without clear proof. In the last forty years wheat has ten times averaged less than 47*s*. a quarter for the year; in 1835 it was 39*s*., as before mentioned; in 1851 it was 39*s*.; in 1864 it was 40*s*.; and in 1870 it was 47*s*.: and on each occasion it soon rose materially. Whatever the causes, the facts are certain, and it may fairly be inferred that what has so often happened is not unlikely to happen again; although it may be difficult to predicate the precise form and the cause of the change. The reaction from the excited prices of almost all articles of commerce, but especially of iron and coal, in 1874, necessarily affects the price of all articles of consumption, and it is much more difficult to say why the loan of money should be cheap, than why wheat should be cheap.

How a good state of moral and intellectual character in the labourer, supported by a full rate of wages, is to be managed so as to enable this country to compete with the labour of other countries where the labourer is not cultivated to so high a standard, nor used to the same comforts, is one part of the present difficulty; and this may be met, in some degree, by the substitution of intelligent supervision of machinery for the exercise of manual labour wherever such substitution is possible.

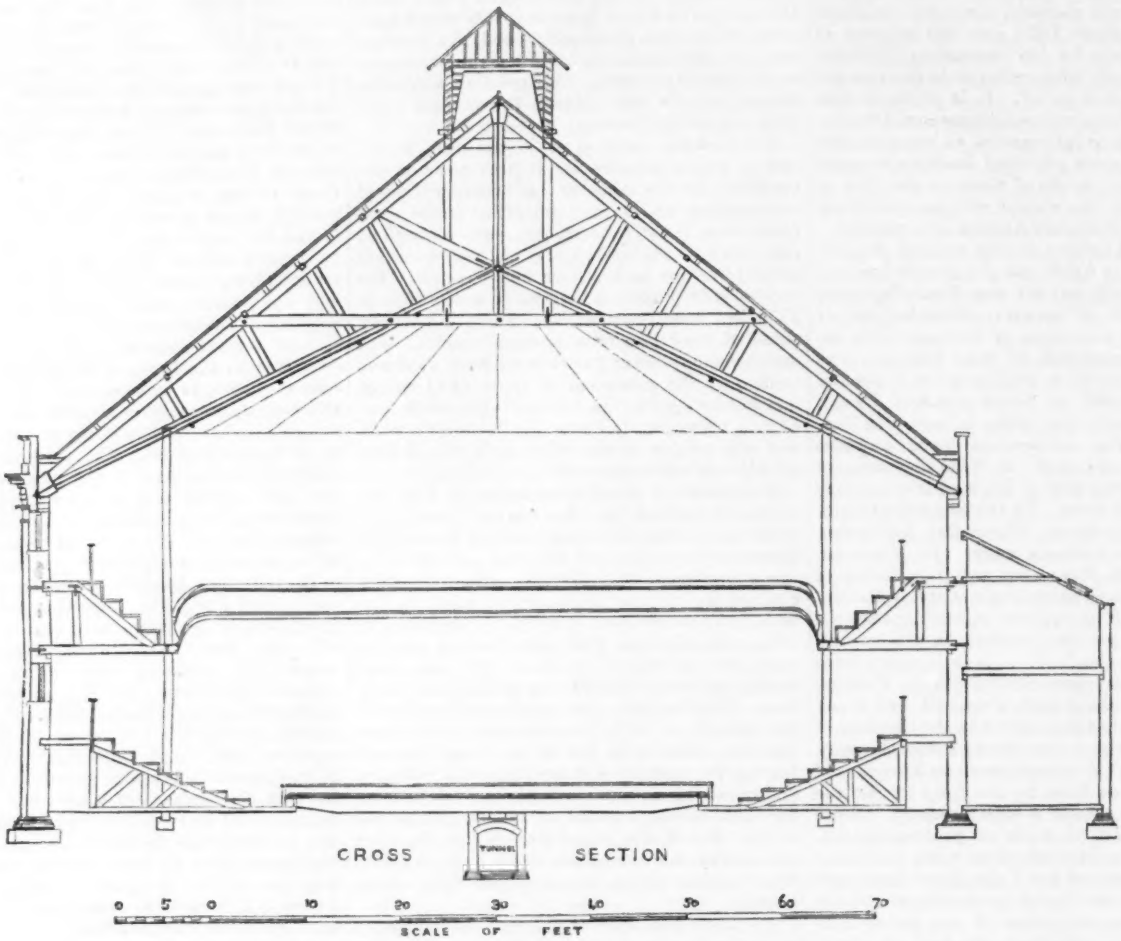
In 1851 the thrashing-machine had hardly established itself, the imperfect arrangements for ploughing by steam were just commencing, and after that came the reaping-machine, all successively requiring more mind than mere manual operations. At the present time all these pervade the land, and are gradually assisting to exercise the intelligence of the agricultural labourer. And when this higher standard of intelligence is attained generally, it may well be that the increase of wages will be greatly compensated by more intelligent work. Possibly one of the points to which we have not sufficiently attended is, that the implements necessary to enable us again to produce at such prices as to be able to meet foreign importation have not been adopted more thoroughly.

As I have before pointed out in this hall, the rent of the Whitfield Example Farm was 44 per cent. of the value of the gross produce before the outlay upon it in 1840, and was 20 per cent. of the value of the subsequent gross produce, and yet was 375*l*. as against 200*l*. previously; the value of the produce having been 1,912*l*. in the one case and 463*l*. in the other. The further increase of produce will probably afford room for the satisfaction of all the various claims upon it, and every mechanical and manual economy in cultivation will increase the margin required to recompense the additional outlay.

And again, every quarter of wheat brought from foreign countries, as it increases the demand for labour at its place of produce, tends to raise the labourers' wages there, so that the foreign grower has to undergo difficulties similar to those borne by the English grower. When prices become unremunerative the reflux of labour materially affects the rate of wages in this country, and it is stated that, in the last year, the immigration to England from America was only one-third less than the emigration from England to America.

The present depression may be expected to pass away as previous depressions have passed away, searching out, however, in its progress the estates which remain unimproved, undrained, without good cottages, without efficient buildings, and without confidence of tenure. But the estates of this class will, in 1876, bear a very small proportion to their extent in 1851.

The systems of tenant-right in Surrey, Sussex, and the West Riding are the subjects of deserved reprobation, as unjust to incoming tenants, ruinous to the land, and injurious to the landlord, as producing a system of fraud and chicanery which all intelligent farmers were desirous of seeing terminated; while, in Lincoln and Nottingham, the system of husbandry, with compensation to out-going tenants, is described as no whit superior to that of West Norfolk, where capital was not protected by any system of tenant-right. The land round Stamford, lamented over by Arthur Young in 1770 as uninclosed, with the words, "It is melancholy to think that, in an age wherein the benefits of inclosing are so well understood, such tracts should remain in such a comparatively unprofitable state"; and which in 1851 remained as they were in 1770, have since that period been inclosed, and are recovering from centuries of neglect. There are still, however, some common fields not far from Stamford, which are in as discreditable a state as they



HENGLER'S NEW CIRQUE, LIVERPOOL.—*Section.*

were a hundred years ago. The extent of improveable land in Cannock Chase, some 14,000 acres, is remarked upon; the whole lying uncultivated. But, since 1851, this barren land has been found to contain coal, and the heretofore worthless property has realised not unfrequently 700*l.* an acre. Cottages, coal pits, railways, have been made upon it, and the greater part is covered with a busy, industrious population.

HENGLER'S NEW CIRQUE, WEST DERBY-ROAD, LIVERPOOL.

The annexed engraving represents one of the largest permanent circuses in the kingdom, and which was opened a few days ago. It stands at the junction of Walker-street and West Derby-road, Liverpool. The front elevation faces the West Derby-road, and is carried out with red pressed bricks, relieved by ornamental dressings. In the front of the main building there are five shops, with principal entrance to the Cirque in the centre leading to stalls and boxes, below the level of the wall at the end of it, shown on the plan. This entrance has iron ornamental gates. The floor is laid with tesselated pavement, and glazed doors are placed at the end to prevent draughts. A commodious vestibule is provided here with cloak-rooms for the audience of stalls and reserved seats. On the right-hand side is the entrance to pit, balcony, and promenade. The entrance to the gallery is in Walker-street, and is reached by a stone staircase, with level landings. An extra exit door from the pit is provided in this street; also an extra exit for parterre and gallery.

At the rear of the building is stabling for fifty horses, with carriage-shed, and the usual stable requirements. Six dressing-rooms and commodious wardrobes are at the side and back of the main building.

The interior of the building is fitted up after the arrangement of Mr. Charles Hengler's other permanent circuses in Glasgow and London, which have been carried out by the same architect, Mr. J. T. Robinson. The seats are all arranged so as to give a view of the arena, and are divided into five private boxes, 200 reserved stalls, 600 seats in the parterre, 2,000 in the pit and balconies, and 1,600 in the galleries, thus having accommodation for 4,500 people.

The construction of the roof is novel in design, the span being 100 ft., and the collar-beam is 18 ft. from the feet of the double principal rafters; 1½ in. tension rods are placed from the feet between these rafters, running to the bottom of the king-post, and thence to the top of same, thus forming a light timbered roof and an iron one at the same time; 9 in. by 3 in. purlins are placed every 3 ft., resting on the principals, and are covered over with dry 1¼ in. boards, and then slated. A syphon ventilator is formed in the centre of the roof, 12 ft. square, and inlets of cold air are fixed in convenient places to assist this ventilation and avoid draughts. Special care has been given to this part of the arrangement, with what result we have yet to learn.

The ceiling is constructed of wood and canvas, formed into panels and ribs, with bosses at each intersection of the ribs, from which drop chandeliers of brass, containing fifty lights; there are twelve of these in number. The sunlight has a domed silver plated reflector over it, the idea of the proprietor. It was executed by Messrs. Z. D. Berry & Son, Regent-street, Westminster.

The front and side balconies have ornamental fronts; the caps of pillars have the Prince of Wales's feathers. In the spandrels of the arches are large trophies and flags of all nations. The decorations are carried out in gold on a mauve and pink ground. The ring is fitted with an extra fence, to prevent the soil being kicked over into the face of the audience.

The contract for the main building, stables, and entrances was let to Mr. S. Campbell, contractor, Liverpool. The slating was done by Messrs. Wild & Sons, of Hull. The gas-fittings are the work of Mr. Price, of Liverpool. The fittings for the sunlight, and lights to the exterior, are by Messrs. Z. D. Berry & Son. The iron stable-fittings have been supplied by Messrs. Alderman Bennett & Sons, of Liverpool. The iron gates and seat standards from Messrs. Smith & Co., Sun Foundry, Glasgow. The decorations were entrusted to Mr. Thomas Rogers, of London. The raised ornament to the balcony fronts, &c., was carried out by Messrs. Jackson & Co., Rathbone-place, London.

Mr. Gilbert, of London, acted as clerk of works and foreman of interior fittings.

COMPETITIONS.

Whitworth, near Rochdale.—The plans of Messrs. Maxwell & Tuke for the chapels, &c., in the New Cemetery have been chosen by means of a limited competition. The design places the three chapels parallel, like the arms of the letter ш, with vestries and covered hearse entrances between a central tower and spire over the north end of the central or Episcopal chapel. The vestry for this is at the back of the building. The buildings will be of stone, roofed with slate, and overhanging eaves with oak barge-boards. The chapels will be warmed with superheated pipes, conducted from the fireplaces in each vestry.

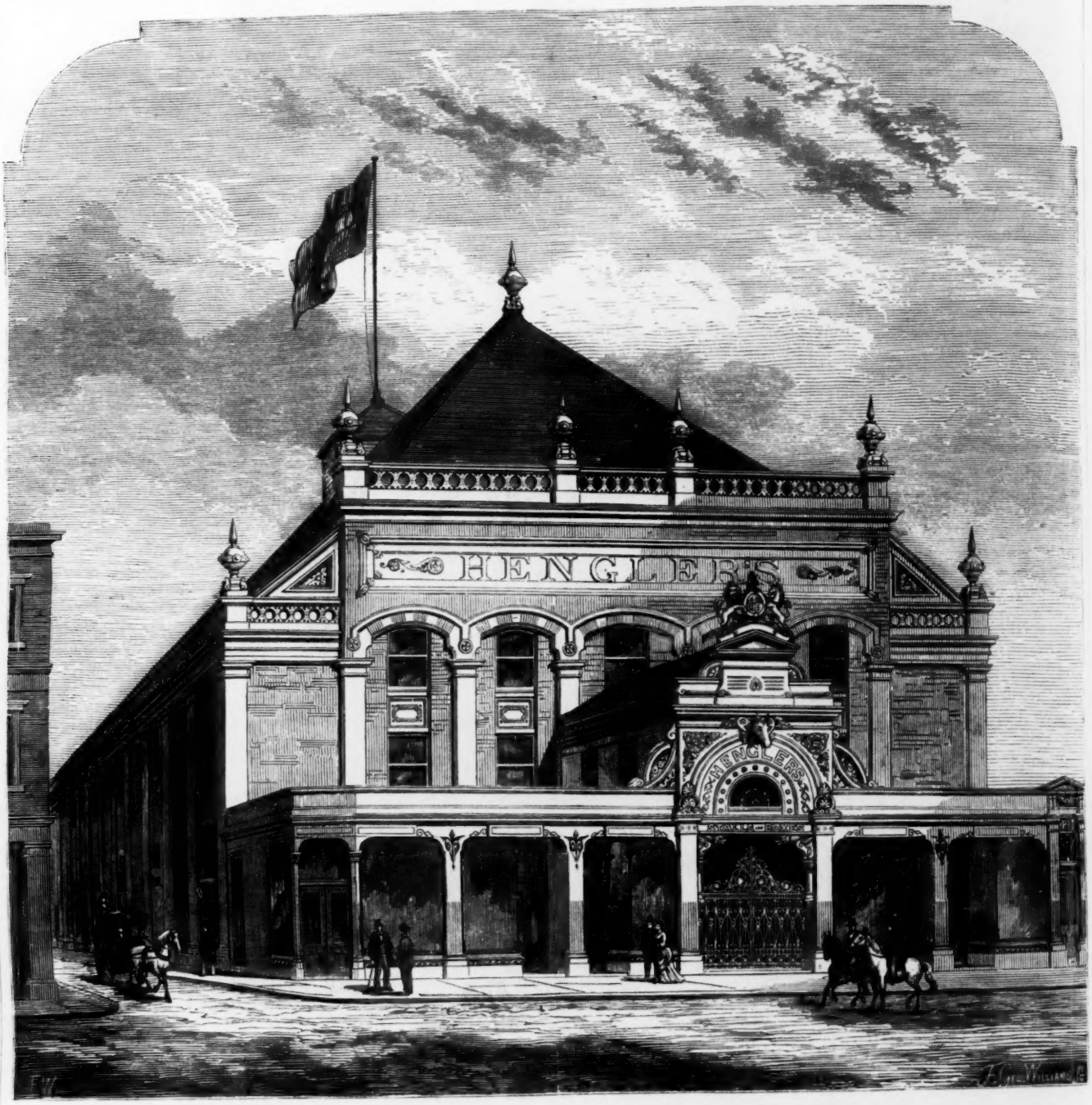
St. Andrew's, Upper Norwood.—Messrs. Power & Wheeler, the successful competitors, write to complain of a letter addressed by another competitor to the chairman of the Building Committee, after the decision, impugning the correctness of their estimate. We think it unnecessary, however, to print their statement.

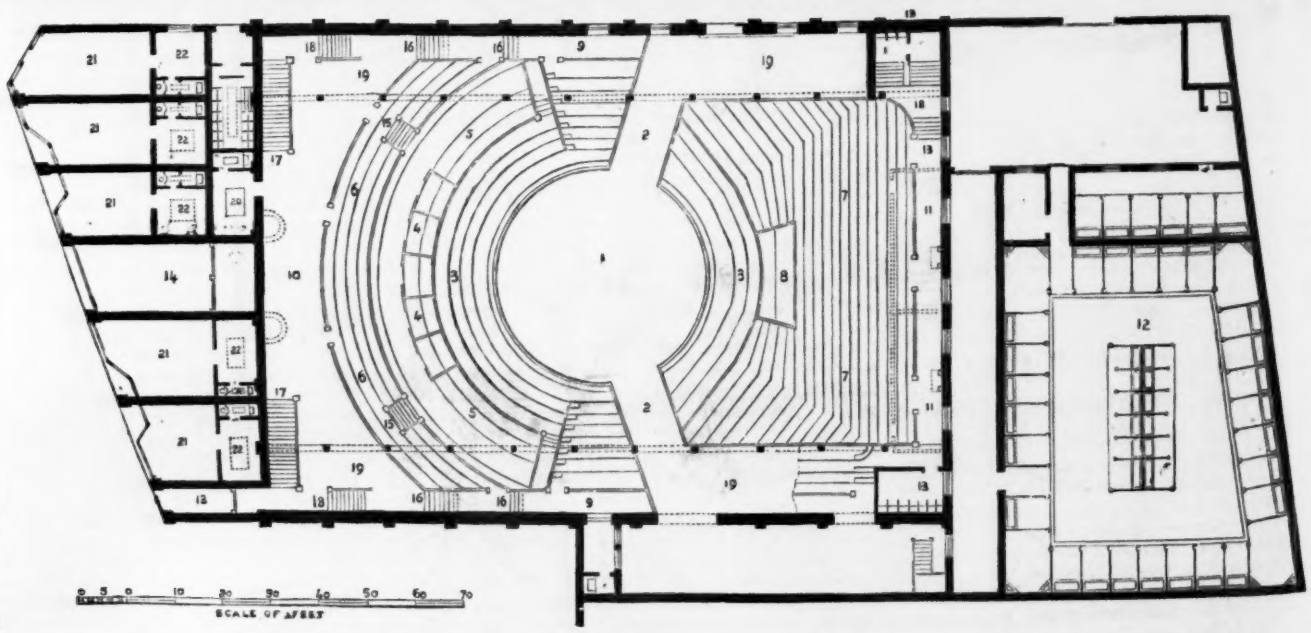
COMPENSATION CASE.

JENKINS *v.* THE SCHOOL BOARD FOR LONDON.

This case (heard in the Sheriff's Court, Red Lion-square) was a claim for land required for a new school at Kensal-green, and it was stated that property was rising in value in the neighbourhood. Several witnesses were examined. The value, as alleged on one side, was 2,500*l.*, with the 10 per cent. allowed for compulsory sale, being at the rate of 3,500*l.* per acre, and on the other side the estimate was 1,076*l.*, or 1,500*l.* per acre.

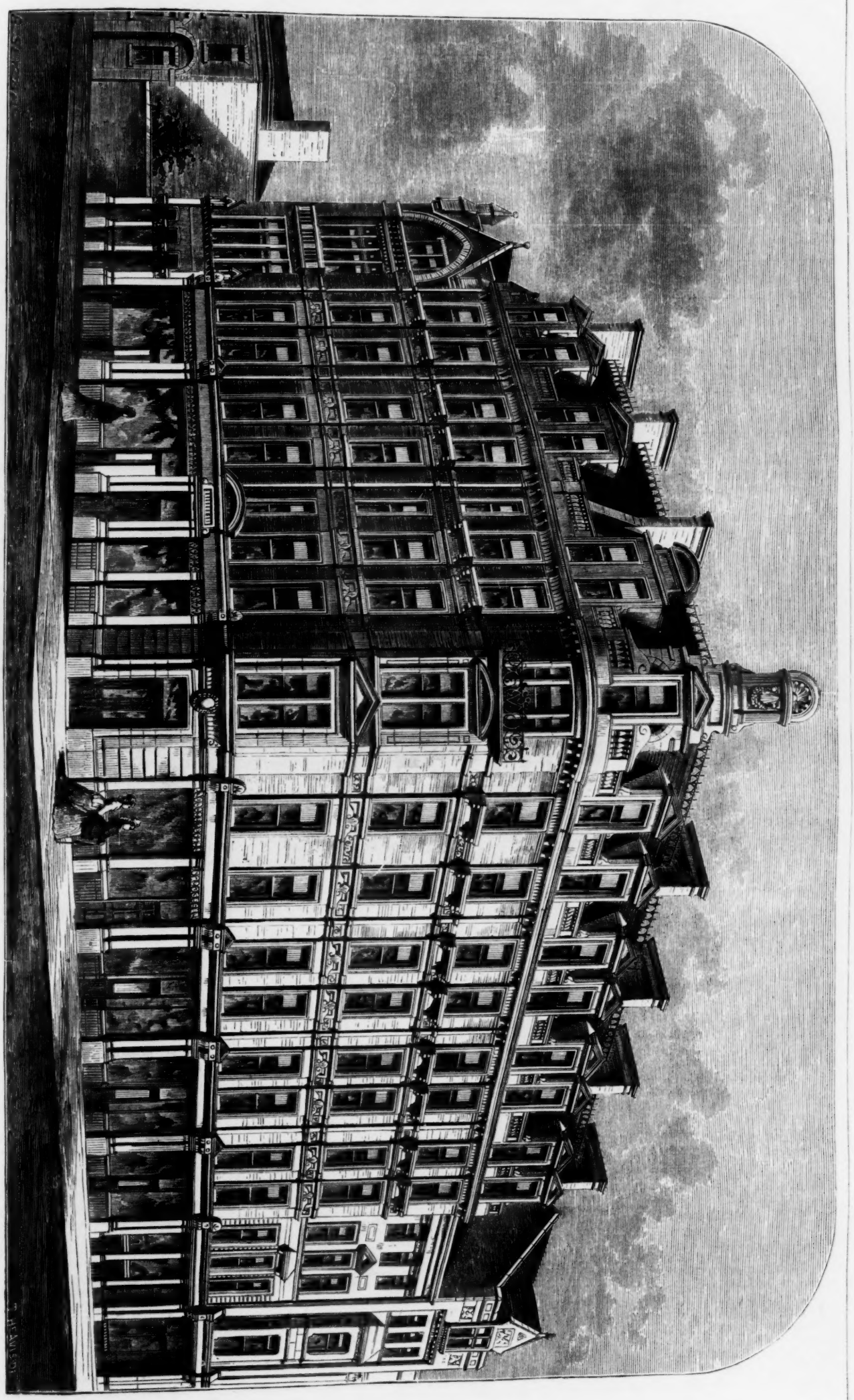
Counsel addressed the Court, and after the learned Under-Sheriff had placed the case before the jury they consulted. A verdict was given for 1,800*l.* The jury had in the early part of the day inspected the land.





1. Ring.
2. Entrance to ring.
3. Parterre.
4. Boxes.
5. Stalls.
6. Pit.
7. Gallery.
8. Orchestra.
9. Promenade.
10. Promenade: gallery over; pay-boxes under.
11. Promenade: property-rooms under.
12. Stables.
13. Entrance under.
14. Principal entrance under.
15. From principal entrance to boxes, &c.
16. Steps down.
17. Steps up.
18. Gallery-stairs.
19. Gallery over.
20. Ladies' cloak-room.
21. Shops.
22. Sitting-rooms.

HENGLER'S NEW CIRQUE, WEST DERBY ROAD, LIVERPOOL.—Mr. J. T. Robinson, Architect.



LONDON STREET ARCHITECTURE: NEW BUILDINGS AT THE CORNER OF CHANCERY LANE AND HOLBORN.—MR. LEWIS H. ISAACS, ARCHITECT.

NEW BUILDINGS AT THE CORNER OF CHANCERY-LANE AND HOLBORN.

AT Michaelmas Day, 1875, the leases fell in of the plot of land containing five houses in Holborn, two in Chancery-lane, and the restaurant at the corner of the two thoroughfares; and the governors of St. Bartholomew's Hospital, deeming this the right opportunity for effecting the long-needed improvement of Chancery-lane, gave notice to the respective tenants that, on the expiration of their terms, the premises would be pulled down, and the land let on building leases.

Negotiations were at the same time opened with the Metropolitan Board of Works, who readily availed themselves of the favourable circumstances thus presented, and the purchase of the Hospital's interest in the land required for widening the roadway of Chancery-lane was soon effected.

A further strip of land belonging to the Honourable Society of Lincoln's-inn is still needed to complete the improvement, but some delay has arisen in regard to the acquisition of this, owing to the fact that the Government hold a lease of the plot with a right of pre-emption, and as yet no terms have been arrived at for the purchase of this right. Meantime carriage traffic has received the full benefit of the improvement, for the roadway is now sufficiently wide to admit of two vehicles passing abreast. Pedestrians, however, must cross from the west to the east side of Chancery-lane on approaching Holborn, or run the risk of being squeezed or mud-bespattered by the wheels of passing vehicles—a state of things barely safe and certainly highly inconvenient. The Government's interest in the narrow strip of land must be so small as scarcely to be worth consideration, and it is earnestly to be hoped in the interest of the public that the department charged with settling the terms upon which the land can be added to the highway will speedily dispose of this preliminary.

The advantages resulting from the instalment of this street improvement already made are so great and so obvious that it appears almost incredible its accomplishment should have been delayed until the present time.

In arranging the plan of the building plots, Mr. I'Anson, the Hospital Surveyor, appropriated the old corner site to the roadway, thereby reducing the number of the new houses from eight to seven; and, by a further re-arrangement of the areas, three frontages were obtained in Chancery-lane, three in Holborn, and the corner block looking on to both streets. The area belonging to the Hospital Authorities absorbed in the public way is, in round figures, between 1,000 ft. and 1,100 ft. For this area the sum of 5,000*l.* was paid by the Metropolitan Board of Works, or, taking the land uncovered as being worth twenty years' purchase, at the rate of nearly 5*s.* per square foot per annum. In determining the reasonableness or otherwise of this purchase, it should be remembered that the most valuable part of the whole site, viz., the old corner plot, was entirely given up, as also, that the strip in Chancery-lane was all frontage. The purchase of the Lincoln's-inn land not being completed as yet, we are unable to give the total cost of the improvement. Whilst on this part of the subject, we would remind our readers that the terms upon which the new building plots were let to the respective lessees were quoted in a recent number of this journal.

Five of these lessees, taking six out of the seven plots, agreed to avail themselves of the services of one architect, and our illustration shows the result of this arrangement. It is not often that adjoining owners exhibit so neighbourly a feeling; and the public thoroughfares of the metropolis evidence, by the want of harmony in the buildings which skirt them, how sadly architectural effect is frittered away by the little bits into which London is thus cut. In the present instance, as we have said, the owners of six adjoining properties, with practically unlimited powers to determine how their domiciles should be fashioned externally, agreed upon one design, and employed one architect, and one firm of builders to carry the same into execution, rather than exhibit their respective idiosyncrasies in bricks and mortar.

Touching the design, we would remark that novelty is displayed in the treatment of the dressings round the third-floor windows, and the incorporation, so to speak, of the salient features of the principal cornice therewith. The corner next Chancery-lane has received consideration, as have also the dormer windows and sky-line generally. The materials employed in the front elevations are white Suffolk bricks and Portland stone, the pilasters of the shop-fronts being of polished Aberdeen granite.

The works have been carried out under the personal superintendence of Mr. Lewis H. Isaacs, architect, by Messrs. Scrivener & White, whose representative was Mr. Turner. The contract price for the block of six houses was 20,044*l.* We must not omit to mention that since the completion of the street widening, the District Board of Works have paved the carriageway of Chancery-lane with wood—a boon which, no doubt, is duly appreciated by the occupiers of chambers in Lincoln's Inn and other professional men living in the locality, let the future of wood-paving be what it may.

HOUSE BUILDING IN OLD LONDON.

ON looking carefully down a long list of dates appertaining to any particular country or town, it is singular to note what comparatively small and unimportant occurrences go to make them up, and how many really momentous matters in its history are omitted. The curious reader will find numerous examples of this in a categorical history of London, from its first foundation to the present time. How many items, for example, in the *architectural* story of London city have been altogether forgotten, no notice apparently having ever been taken of them; and how many things of house-building interest have there been of which no record whatever has been kept. It will be a curious thing to note when the very last record of old London shall disappear, to make room for a more improved state of things. There may, perhaps, be no help for all this, however much it is to be regretted; but two things at least can be done. The *past*, as Mr. President Barry noted the other evening, is certainly beyond control, but the future, and what to do next, may be dealt with. We may, therefore, yet preserve intact as much as is possible remaining of the London of past days, and we may gather together and carefully keep, and publicly exhibit sometimes, all and every *pictorial* representation of old London that can be got at, and there is a very great deal of such scattered about, here and there and everywhere. It may be useful to call attention to a little of this, and note its importance and interest.

There are many, doubtless, who may fancy that it is an easy matter to picture the London of the past to themselves, but the fact really is that but little notion can, in the present day, and in the midst of present surroundings, be formed of a state of things so totally unlike it. Looking down a new London street in an "improved" quarter is simply to look for a something to take the eye, and, if possible, to interest the mind of the observer; but, as all must know, the effort is altogether hopeless in nine cases out of ten. There is nothing to be seen but two parallel lines of uniform building; the house nearest you is simply repeated to the end of the perspective and back again, all and everything are alike. More than this, you are quite conscious that the interior of the houses are all of them precisely similar. But in an old London street all these conditions were reversed. Every house was different, not only in external look, but in internal arrangement and planning; and looking down such street the eye could not do otherwise than rest and pause at each house, even while at the same time it took in the whole perspective. No two things, or methods of work, can be more unlike, and there may be some interest, now that architectural practice is going through, as was heard at the Institute, a new ordeal, in looking into and balancing the merits and demerits of the two modes of work, the *antique* and the *modern*. And one other item too, and a most necessary one, we would include in it is to cast a glance practically, before it is too late, at one or two things yet remaining of old London house-building. The London house of the past was not only a quaint and picturesque structure, but, as we take it, a "comfortable" house.

We are somewhat at a loss, it must be confessed, for a due and sufficient quantity of evidence, in the way of paper records, of the past system of "building" generally. At times we almost doubt whether a plan or a drawing at all was made of a timber-built house. It would seem rather to have been built up out of the head of the master builder as it went on, in pretty much the same way as scaffolding and temporary shed building is now. There is hardly any other way of accounting for the strange oddities found in some of these quaint buildings. We are to seek, first, for the whereabouts of the fast-disappearing remains of old London, and then to find out any special value there may be in those remains in detail, and to then contrast it with our modern and more improved system of doing things. We do not propose to exhaust the list of house-building memorials, but only to indicate a few of them. The extension of a town, by the way, of course commences by the adding to the outskirts of it, as seen in the map we have before alluded to; but the "improvement" of a town begins in the thickest and most crowded part of it, so that ancient London began to finally disappear at the centre. The houses, as shown in Norden's map, evidently extended for some distance down and up the River "Thamys," on both shores of it, and there is a right tumble-down fragment to be met with, washed by the tide, between Shadwell and the West-India Docks basin. These timber-built houses face the river, and are to be got at through a narrow street parallel with it. They are, of course, inhabited by a somewhat rough race, with decided waterside proclivities, and this fragment of London antiquity, without doubt, affords a glimpse, though, may be, but a glimpse, of the character of London town in the fifteenth and sixteenth centuries, and, indeed, down to the date of our modern improving era. Only few, probably, find their way into this begrimed locality; but many must pass it on the river, and, if so, they must have noticed,—and it is worth note,—not far from it, the sole present representative (in London, certainly) of Gothic boat-building, harmonising completely with the buildings on shore. We refer to the Dutch fishing-boats, five or six in number, admirably built, and, it may be added, *designed*, with delicate mouldings and curves here and there, and which are well worth careful note. We have improved since the days of Elizabeth in ship-construction, that is certain; but most certainly not in artistic refinement of details. The curious-looking craft drawn by Van den Keere, on his sketch of "Thamys Fluvius," might well have had one of these Dutch fishing-boats among them. And while here,—should our reader ever get so far,—it is instructive to get a little further until he come to a quite *new* locality, Cubitt-town, and there see numberless lengths of long straight streets, all of them alike, and the houses alike,—a complete contrast to any notion that is to be formed of the old ways of house-building and street laying-out.

But we need not travel into quite so outlandish a region to get a glance at the aspect of London in past days. It may be got at close at hand, and with surroundings on all sides full of interest and suggestive of much. Holywell-street,—Holy-well, at the back of the Strand,—and Wych-street, close to it, illustrated in our pages long ago, both contain, strange to say, memorials of the London of past days. They are doomed to destruction, and that in no long time, it is quite certain; so that if any instruction does happen to lie in them, no time is to be lost. Looking up Holywell-street, or, as now named, "Booksellers'-row," a long narrow street is before you, with improvements, many already commenced, and yet going on; but in the midst of it are some of those plaster-covered houses, with gables and quaint overhanging upper stories. This special street is narrow, and will admit but of one "London gondola,"—Hansom cab,—up or down it at a time, so somewhat inconvenient, but in this very narrowness its special character and picturesqueness lie. It gives at least an imperfect idea of past street-building. Some quite new and improved house-building may be viewed on its north side, contrasting with its more ancient portions. What makes it the more telling is the fact of its shops being for the most part open bookstalls, so that here, in spite of drawbacks, a good idea of an old-world way may be found.

One special house, with front in Holywell-street and another front in the Strand itself, is in woeful plight, and covered all over with posters and advertising sheets, so that it is difficult to find the whereabouts of the street-door even, much less the window openings. Its "title deeds" are uncertain, and no man can therefore claim it,—typical of things passing away.

We may well enter, if only for a moment, one of these houses yet remaining of the past, and doubtless so soon to pass away and make room for what is now thought to be so much better a human dwelling. We take a rough one, almost

at a venture, and in an out-of-the-way locality. It is sadly out of the upright, it must be owned, and equally out of order, and in need of the three or four coats of common oil-colour. It is of plaster, by the way, both outside and inside. For quaintness of plan and internal arrangement it might satisfy even Charles Dickens himself, were he but in the flesh, and in need of a place of abode for one of his special favourites. We need not see the basement, for it was evidently constructed as cellarage and storehouse; but the ground-floor arrangement exhibits the great distinction between the house-building of the past and the present. The "passage" is low and narrow, widening a little as you come to the oddly-constructed, but really convenient, staircase, with its many landings and quaint balustrading. The front room is small, but the back room is a magnificent apartment, intended as a kitchen, with huge fireplace, and with convenient shelves round about. It was evidently built as both kitchen and living-room, or "parlour," and so takes one to the simple manners of our unfashionable forefathers. Nothing can be more convenient, and nothing more homely; but the idea, even if changed into more modern shape, is a good arrangement, and suggestive. There are some other small rooms here with purposes not so evident. The rooms above, on the first-floor, have those always quaint and right useful features, projecting windows, so that you can see up and down the street perspective. Here, certainly, is a hint worth the taking. Some of these houses are well worth measuring and plotting by the student, for they are full of ingenious contrivances.

And now it may perhaps be asked what advantage, or gain, or merit had such a system of house planning and building over that of the present day,—that is, if it had any, considering, at the same time, the multitude of disadvantages and drawbacks on all hands which such a mode of work undoubtedly entailed. We might urge that there can be, and certainly should not be, any reason whatever why houses thus designed should not be fully as good as the best that are now built, as to drainage, water-supply, lighting, heating, and so on; but the main question is, does this individuality of house-building yield enough to pay for the pains taken, and the thought expended on it? Is the mental eye-gain equal to the cost? That is the real question. We maintain that it does afford this, and that the loss entailed by the present machine-like and dull uniformity of house-planning to be seen mile upon mile all round London, and making up in the main this vast metropolis, is a tremendous evil, not in any way at present to be duly and sufficiently estimated. It would seem impossible to fully satisfy human nature with a bald utilitarianism, however perfect that may happen to be, or however fully it may seem to supply every material want. The eyes even of those who may seem all but insensible to any but animal wants need objects special to them, though they know not what, and the absence of such, though apparently unnoticed, cannot be unfelt.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

At the ordinary general meeting of the Institute on Monday, the 20th ult., Mr. Charles Barry, President in the chair, several donations of books for the library were announced.

M. Paul Abadie and M. Theodore Ballu (members of the Institute of France) were proposed as Honorary and Corresponding members; and Mr. W. Kidner, of Shanghai, was recommended for membership as a Fellow.

The Chairman announced that the Manchester Society of Architects, desiring to do honour to the Institute, had cordially invited Mr. Eastlake and himself, as official representatives of the Institute, to the annual dinner of the Manchester Society. The invitation was accepted and the engagement fulfilled. The most kindly expressions were used towards the Institute by the chief architects in Manchester, and three of them at once agreed to join its ranks; others would probably follow. Such of the members of the Society who had important works in hand were courteous enough to accompany the representatives of the Institute on a visit of inspection, in the course of which much that was noteworthy and valuable was seen. Irrespective of the kindness shown to him and Mr. Eastlake by their Manchester friends, he highly appreciated the courtesy manifested towards the Institute.

Mr. T. H. Wyatt said he had the honour to receive a similar invitation during his presidency, and he could fully bear out what had been said by the President as to the fraternal feelings evinced by the Manchester architects.

Mr. Samuel Knight (Associate) then read a paper on "The Influence of Business Requirements upon street Architecture," printed in our last.

In the discussion which followed,

Mr. John Hebb said he was rather afraid that Mr. Knight had been somewhat unfortunate in his illustrations, which did not at all adequately represent the architectural ability of the city. Few or none of the city buildings most conspicuous for their ability were represented by the drawings on the walls. In many cases, he ventured to think, the difficulty which Mr. Knight had pointed out of dealing satisfactorily with the superstructures of shop premises had been successfully surmounted.

Mr. Knight wished to explain that, if the drawings on the walls were not so widely-representative as could have been desired (and he confessed that they were not), it was no fault of his. He had tried to obtain drawings of many of the most notable modern buildings in the city; but in almost innumerable instances he was unable to do so. Not that the architects of those buildings were unwilling to assist him; but because they were unable. He had a large pile of letters, of which the substance was:—"I should be most happy to oblige you if I could; but I assure you that I have no perspective of the buildings, and such drawings as I have are very dirty; they are in pencil, and unfit to show." Such letters would seem to show that many City architects had such confidence that their buildings would "come out" well in execution that they did not trouble to make perspectives, the geometrical elevations sufficing for their wants.

Mr. H. Dawson said Mr. Knight had alluded to the colonnade formerly existing in Regent-quadrant, comparing it with the colonnade in the Rue de Rivoli in Paris. But there was a great difference between these colonnades. In the first place, the Regent-street colonnade was very much wider in proportion to its height than that in Paris; and it should be remembered that the entresol in the Rue de Rivoli arcade so raised the height of the soffits of the arches above the shafts as to admit a very large amount of light to the shops; whereas in Regent-street the great width of the colonnade and the smallness of the height made the shops perfectly gloomy. If the Regent-street structure could only have been altered to resemble that of the Rue de Rivoli it would have been a very beautiful feature made suitable for business purposes. He regretted that Mr. Knight had spoken disparagingly of the use of Bath and similar soft stones. It was a very important thing that the old prejudice as to Bath stone should be got rid of as soon as possible. That Bath stone was perfectly capable of standing the London atmosphere he had no reasonable doubt, although many buildings in which Bath stone had been used might be pointed to as very serious failures. The reason why Bath stone—by which he meant not only the stone which came from the immediate neighbourhood of Bath, but almost all the stones of the great oolitic series—so often failed was simply that care was not taken in its selection, and that it was not laid in its natural quarry-bed. That Bath or oolitic stone, when these conditions were observed, would retain its perfect preservation, even in the London atmosphere, was proved by the exterior of Apsley House, Piccadilly, in which stone from the old Combe Down quarry was exclusively used, and in which there was scarcely to be seen a defective stone. The west front of Westminster Hall was also of oolitic stone. Such stone was largely used in Bristol and other large towns in the West of England, and was, under the conditions he had named, found to wear well. In talking of "Bath" stone, it should be recollected that the best oolitic stone did not necessarily come from Bath. The great oolitic series spread over a very large area. To what was called Corsham stone he had a very great objection, although some of it was good. During the last two or three years he had used a very good oolitic stone from the Bradford district. Farleigh Down stone had got a fearfully bad name in some quarters; but the two lower beds furnished some good stone, and if properly selected and bedded no finer stone could be used. In texture and colour it was equal, if not superior, to Portland; and where weight was not an object Farleigh Down stone was better than Portland for many purposes. But, whatever variety of stone was used, much depended on its selection. Had the particular bed of Bolsover stone chosen by the architect of the Houses of Parliament been used we should not have to lament the premature decay of the exterior of those buildings.

Mr. Woodthorpe agreed with Mr. Knight as to Bath stone, and strongly deprecated its use for external work. Three years ago he had serious thoughts of bringing to the notice of the Institute a long list of comparatively new buildings in London which were rapidly decaying through the use of Bath stone, but he shrank from the task when he thought of the unpopularity he should incur. But he felt no such delicacy in speaking generally. Buildings which had been faced with Bath stone seemed to be subject to a disease which might be called the "stone small-pox." He could point to two churches, for instance, which had not been built twenty years, and in which the stone on the exterior had had to be almost entirely renewed from pinnacle to base. There were eight or ten varieties of stone which he could mention as being far superior to Bath or Caen stone.

Mr. H. H. Statham said it was not necessary to go to Paris for examples of the colonnade in streets. The Chester "Rows" were very nearly as broad as the pavement in Regent-street, and they were admirably adapted for shop purposes, and there was ample light. The colonnade in Regent-street was removed, he believed, not so much because it interfered with the light, as because it was supposed to give rise to scenes inconsistent with the highest theory of social life. He could not agree with one of the conclusions to which Mr. Knight's paper seemed to lead, viz., that business architecture was the apotheosis of plate glass, because plate-glass destroyed the scale of a building. The necessity for such large squares of glass as were to be seen in modern shop-fronts was more fancied than real, and he did not believe it would in the least affect a tradesman's business if shop-fronts were constructed more in accordance with architectural principles. The shop architecture of the present time afforded another illustration of the fact that architecture always represented the spirit of the day, and the spirit of to-day was "show." This got rid of, we should have better and more solid shop-architecture. As to masking ironwork "uprights" by veneerings of stone in the form of pilasters, it was bad enough, but not so bad as the carrying of the superstructure of a building on iron girders masked by arches or lintels of masonry, which, to the outside observer, were really structural features instead of shams. This practice was sometimes resorted to by architects of whom better things might fairly be expected.

Mr. Jennings said, with reference to oriel or bay windows, there seemed to be a growing tendency on the part of the Metropolitan Board of Works to allow of the use of these features, as evidenced by the provisions relating thereto in the proposed new Building Act of two or three years ago. Bay windows were not only capable of being very effectively treated as architectural features, but they very often greatly added to the comfort and convenience of the inmates of a house, as, for instance, when such a window faced the south, it would not be necessary to entirely shut out that prospect with the view of excluding the sun. Mr. Knight had made no reference to the use of terra-cotta in street façades, but that material was destined in his (Mr. Jennings's) opinion to have a great influence on the street architecture of London. One great advantage possessed by brick over stone was that it was fireproof, for in most cases the walls of a brick building would not be materially damaged by fire; but in the case of a building whose walls were of stone complete reinstatement would be necessary after a fire, owing to the calcination of the walls. As to the warehouses in Cannon-street, it was stipulated by the Act passed for carrying out the work that at least one-third of the area of each façade should consist of solid brickwork or masonry, but this provision was not uniformly adhered to.

Mr. Waterhouse, in proposing a vote of thanks to Mr. Knight for his paper, said that with reference to the capabilities of the oriel window, not only as an architectural but as a utilitarian feature, an excellent example was to be seen in a block of offices known as Oriel Chambers, in Liverpool.

Professor Kerr, in seconding the motion, said that the removal of the Regent-street Colonnade was to be regretted, but its removal was mainly

brought about, he believed, by the fussiness of the tradesmen, and not because it was found that the shops were not sufficiently light. There seemed to be a great prejudice against covered ways or arcades in London. Some years ago a very good suggestion was made to form an arcade from Bond-street to Regent-street, but many of the clergymen and noblemen of St. James's predicted that the carrying out of the scheme would be so detrimental to the morality of the neighbourhood that the project was abandoned. The great question opened up by Mr. Knight's paper was whether any attempt was to be made to group the houses into long façades, or were we to be for ever content to allow every man to build his own bit of property according to his peculiar whim? Something was to be said on both sides. By having a multitude of façades, designed by different architects, a great variety of effect was obtained, and many individual façades might be well worthy of study. But was this jumble of façades to be preferred on artistic grounds to the grandeur of the Paris streets? He thought not. The architecture of London was not altogether a question of plate-glass fronts or of sham iron construction, but it was very largely a question of sky-line.

Mr. Seddon agreed with much that was expressed in Mr. Knight's paper, but he thought the Gothic school had not yet had an adequate opportunity of showing what could be done in street architecture.

Mr. Roger Smith thought that "business architecture" naturally divided itself into two sections, viz., those buildings which had shops on the ground story, and those which had not. In buildings of which shops formed part, it was desirable to make the girder or bressummer which carried the superstructure as prominent and marked a feature as possible, and in the upper stories, to have as much window space as possible, in order to give an appearance of lightness to the façade. With regard to buildings not encumbered by shops, he thought it was obvious that much more satisfactory results could be obtained from an architectural point of view. The advisability of using washable tiles for street façades should not be lost sight of.

Mr. Aitchison said that the question of window openings for business premises was one largely dependent on the widths of streets, and what would be necessary in one building would be out of place in another. One great objection to the use of iron was the cost of keeping it constantly painted. He denied that the huge sheets of plate-glass to be seen in London were essential for the display of goods or to the interests of tradesmen, for the lofty buildings of Paris had shops which were really part of the architecture of the structures, and the Parisian shopkeepers were able to display their goods in a manner quite equal, if not superior, to that adopted by London tradesmen.

The President, in closing the discussion, agreed in deprecating the use of large sheets of plate-glass in shop-fronts. With reference to what Mr. Knight had called the "semicircular Paxtonian roof," he begged to say that the Paxtonian roof was not semicircular at all. The great building by which Sir Joseph Paxton gained his fame was designed as a series of packing-cases, one upon another, without any circular roof, and it was only by the persistent efforts of his (the President's) father that a semicircular roof was adopted for a portion of the Hyde Park Exhibition building in 1851, and afterwards adopted throughout on the removal of the building to Sydenham.

AN EMPLOYER OF LABOUR ON CONTRACTS.

AT the fifth annual dinner of the Newcastle and District Foremen Engineers and Mechanical Draughtsmen's Association, the chairman, Mr. Edward Crawshay, said that for thirty years past his tongue had been heard from time to time in the district; but upon one subject his tongue had been silent, and that was the industrial question—the relations between masters and men, and questions of that class. If he had not been a manufacturer, he should doubtless have said a great deal about it long ago. He believed he had read every book of importance on this subject, and there was no doctrine that he had not tried to get the most truth of he could; but he had never ventured to say anything, because to say anything was to act, and he had to be cautious in what he had to say. He had derived from a work, not included by any means in works on this subject, a few expressions which he thought might be put forward without mischief. He alluded to the work of a writer who did not deal with the present at all, nor with the conflicts of labour or capital, or any question of our own days. He referred to Sir Henry Maine, in whose work upon Ancient Law he was very much struck with certain observations. Sir Henry Maine, in speaking of ancient societies, traced the gradual growth of the custom of entering into contracts—what he called the free agreements of individuals with one another,—as gradually superseding the ancient state to which he gave the term, not patriarchal, but the scientific term of imperative; meaning that the only question to be considered was, who was to give the order, and who to obey? All progressive states gradually grew out of that, and came into a state in which that order ceased to exist, and men entered into free agreements and contracts with one another. Sir Henry Maine told them of a time when even a free market was unknown; and it was only by gradual concessions and arrangements that people were allowed to come and sell with one another in a market; everything was the subject of ordinances and regulations. Sir Henry said that some people regretted that that order of things had passed away,—that order in which it was all command on one side, and obedience on the other; but Sir Henry Maine said he did not agree with them at all; he said we had come to a state when men make bargains, one engaging to do something, and the other engaging to do something in return; and that implied a very high condition of humanity indeed,—it implied that people should enter into agreements one with another, and should faithfully keep those agreements. Sir Henry Maine showed that in the early stages of society the infraction of a contract was not thought much of an offence, because contracts were very rare, and really violations of the established order; and they could not, therefore, get into that position to have free agreements until they got the basis of one man undertaking to work for another. That was the basis of this age—that men should freely agree, and, having agreed, should keep their agreements. In this age, which he ventured to call the age of contract, there was room for not only all the virtues of mankind, but the state of things could not endure unless on both sides there was the utmost fidelity, and the religious observance of all agreements. That was the lesson he drew from Sir Henry Maine's remarkable work, and which enlightened him as to what he considered to be the true character of the age in which we lived. As to themselves and men he might say truly that the imperative age was past. We had come to the age of contracts. We made our engagements and we had to keep our engagements, and nothing had given him greater satisfaction throughout the strife that had unfortunately existed at times between capitalists and workmen in this country than the gradually growing sense on the part of workmen that, whatever the cause of quarrel might be, all contracts should be observed. That was the lesson he ventured to put before them. It was simple, but it was the best thing he could find to say. Let them understand that they were in that relation to one another, and if that relation be faithfully acted upon, then there must ensue in the first place mutual respect; and if there was mutual respect, every other feeling would spring up beside it.

NEW BUILDINGS FOR POOR-LAW ADMINISTRATION.

Fulham and Deptford.—At a meeting of the Metropolitan Asylums Board, on the 18th ult., a letter was read from the Local Government Board on the subject of the proposed buildings on the sites at Fulham and Deptford, for the accommodation of small-pox and fever patients, at an estimated cost of about 12,000*l.* The communication advised the erection of temporary instead of permanent buildings, as being the better course, in view of the present epidemic of small-pox and of the desirability of relieving Hampstead Hospital. The General Purposes Committee had met and considered this letter, and they now reported in favour of the erection of permanent buildings, observing that temporary ones could be erected if an emergency required it. Dr. Bridges, Local Government Board Inspector, who was present, remarked that permanent buildings could not be finished till next March, and then they would be too damp for the reception of patients. Mr. Galsworthy referred Dr. Bridges to the promise in the report to erect temporary, in addition to the permanent buildings, if necessary. The report was adopted.

Salford.—At a meeting of the Salford Board of Guardians, on the 17th ult., the chairman said the committee appointed to carry out the removal of the small-pox hospital sheds from the yard of the workhouse to the land recently purchased at Hope had visited the Manchester Infirmary Infectious Diseases Hospital, and Mr. Booth, the architect, had met them. The committee had intimated to Mr. Booth that they desired that the building should be placed on the further corner of the ground on the line of railway, so as to isolate the building from the surrounding grounds. The committee thought the hospitals should be erected in the shape of separate sheds or pavilions, each containing not more than eight or ten beds, and each being complete in itself and having rooms attached for the nurses. There would be eight pavilions, and all would be connected together by a corridor.

CASE UNDER THE METROPOLITAN BUILDING ACT.

DIVISION OF LARGE WARZHOUSES.

Scott v. *Legg.*—This case, in the Court of Appeal, Westminster, raised an important question under the Metropolitan Building Act, 1855. The appellant, Mr. Scott, was employed by Messrs. Charrington & Co., brewers, to enlarge their brewery. The respondent is the district surveyor, acting under the Metropolitan Board of Works. The appellant had pulled down the side wall of the building in question, with the intention of extending the building laterally.

By section 27, sub-section 4, of the Metropolitan Building Act, it is enacted (with the view of lessening the risk of, and localising, fire) that every warehouse or other building used wholly or in part for the purposes of trade or manufacture, containing more than 216,000 cubic feet, shall be divided by party-walls, in such manner that the extent of each division thereof shall not exceed 216,000 cubic feet. Old buildings are not subject to the provisions of the Act. By section 9, any alteration of or addition to an old building is, to the extent of such alteration or addition, subject to the provisions of the Act. By section 28, sub-section 2, it is enacted that no buildings shall be united if when so united they will, considered as one building only, be in contravention of the Act. In the present case the area of the added building would be less than 216,000 cubic feet, but the area of the old building and the added building, without a division, taken together would be more than 216,000 cubic feet. The magistrate had ordered this area to be divided by a party-wall. For the appellant, it was contended that as the addition did not exceed 216,000 cubic feet, and as the building was only subject to the provisions of the Act to the extent of such addition, the order of the magistrate should be quashed. It was further contended that section 28, sub-section 2, did not apply, as the present was the case of extending one building and not uniting two.

The Court, however, were of opinion that, although there might not be any words in the Act which exactly met the present case, yet, looking at the working of the second sub-section of section 28, the present case was clearly within the meaning of the Act, and they dismissed the appeal.

Mr. C. Scott, on behalf of the appellant, asked for leave to appeal. He stated that the effect of the order would be to put Messrs. Charrington to the expense of some thousands of pounds, and he submitted that the question was one of importance to the metropolis generally.

His lordship said that, although the Court entertained no doubt on the point, still, as it was on the construction of a statute, and raised a matter of considerable importance, the appellant should have leave to appeal.

BANKS.

THE erection of a new bank and manager's residence has been commenced at Boston, for the Stamford, Spalding, and Boston Banking Company, from the designs and under the superintendence of Messrs. Lockwood & Mawson, architects, whose designs were recently selected in a limited competition.

The plans of the same architects have been selected for the new bank and offices at Wakefield by the directors of the Wakefield and Barnsley Union Banking Company, in a limited competition, and the works are to be commenced immediately.

Liverpool Plumbers' Association.—On the 13th ult., the tenth annual tea party and ball, in connexion with the benevolent fund of the above association, took place in St. George's Hall. There were about 1,000 persons present. Mr. James Little, the secretary of the ball committee, read the annual report, from which it appeared that the balance from the last ball amounted to 144*l.* Out of that sum 107*l.* 16s. 6½d. had been paid to widows and orphans, leaving a balance of 36*l.* 3s. 5d.

PROGRESS OF THE PARIS EXHIBITION BUILDINGS.

If any amateur pedestrian, desirous of creating a sensation, is on the look-out for an idea, we would suggest to him the feat of walking across the Champ de Mars at the present moment, against time. We have done it, but with this exception, that we had time at our disposal. In a heavy, driving rain, with the wind not in our favour, constantly sinking in the mud, and finding

"At every deep a lower depth,"

we traversed the Champ de Mars, avoiding occasionally the slush and mire by balancing ourselves on the truck-rails or taking a series of leaps from one sleeper to another. We will not attempt a description of the vast plain, beyond saying that it is strewn all over with stones, trucks, bricks, heaps of sand, iron piping, pails, planks, and an abandoned boot deeply embedded in the clay. Heavily laden with the latter substance, we were glad to find repose in the offices of M. Houberdon, the superintendent of the works, which is in the centre of this chaos of building materials.

The 700 workmen now employed are busy with the foundations of the building, which are being pushed forward with great activity. Steam power is employed in mixing the mortar, for the manufacture of which 50,000 kilos. of Portland cement are required for every 500 cubic mètres of masonry, being the amount of work the contractors are obliged to perform daily, in order to complete the 60,000 mètres for the 1st of next July, at which date also 13 kilomètres of masonry-work for drains must be finished. During the rainy weather the men are protected by movable covered sheds. They are now erecting a powerful steam-engine to extract the sand from a quarry which lies between the site of the Palace and the military school. For the work on the Trocadero more than 1,200 men are employed, who are enabled to continue their work after dark by means of the electric light.

M. Krantz and the members of the superior Commission are greatly annoyed at the engravings of the Exhibition building which have appeared in the illustrated papers here, seeing that they only represent M. Hardy's original design, and this will be considerably modified before it is approved of by the Commission. The great difficulty appears to be the form and the dimensions of the domes, and these when decided upon may possibly necessitate the heightening of the whole of the façade, thus ensuring an imposing effect, which, in our opinion, is wanting in the original project.

Paris.

GRANITE BUILDING.

As the propriety of substituting granite, as a building material that would resist the effects of the destructive and smoky atmosphere of London, for freestone has often been favourably discussed, and as it can now be procured in abundance, and at a moderate cost, it may be interesting, and perhaps expedite so desirable an event as its introduction, if we briefly describe some of the buildings executed in this material, which we have lately seen at Aberdeen.

It is, perhaps, necessary to premise that, with the present facilities of railway-carriage, and the substitution of flat ornamentation for carving, the beauty of which is soon begrimed with smoke, the extra cost upon freestone would be inconsiderable.

The discovery, some years ago, at Kemnay, in the neighbourhood of Aberdeen, of a beautiful white granite, has enabled the local architects to improve their buildings, by using the white, blue, red, and grey varieties in judicious contrast. Considerable beauty is thus obtained, and the necessity of introducing any large amount of carved and moulded detail much reduced. The Imperial Hotel, the Presbyterian Church, the Baptist Chapel, and other buildings are thus treated. The style of the Hotel is Venetian Gothic, with moulded jambs and arches, and some carving in the capitals. Other buildings are in the old Scottish, others in the Flemish, style, with bold turrets. The Presbyterian Church, a church at Alford, and a school at Fraserburgh are in the Early English style. The last building has a beautiful spire, in two colours of granite. The church at Alford is entirely lined internally with contrasted granites, to the exclusion of plaster on the walls.

The new County Buildings in the Flemish style, by Messrs. Peddie & Kinnear, have a fine tower, and they are executed in the beautiful Kemnay granite.

The North of Scotland Bank shows what it is possible to do in granite when cost is not limited. It has a Corinthian portico, the details of which correspond with those of the Temple at Tivoli. The workmanship and jointing are so perfect, and the material so beautiful, that this building looks as if it were executed in marble.

The cost of working granite has of late years been greatly reduced by the introduction of machinery. A style of ornamentation is now common, and comparatively inexpensive, viz.: polishing the whole surface, and then removing the polish in beautiful patterns. This answers well in the grey, blue, and red granites, and when the pattern is delicate, and the rough ground gilt, a very rich but refined effect is produced. London smoke would require the granite to be polished, and, indeed, the great beauty of granite—or marble—is only revealed by this process. The purity of effect of the Aberdeen buildings amounts almost to tameness, and it might be well, therefore, to introduce a moderate quantity of majolica of delicate pattern and subdued colour in the string panels, architraves, and cornices.

This material having a bright surface would harmonise perfectly with a wall surface of polished granite, and it is absolutely durable for external work. With the above examples of granite building at the present day before us, and knowing how subject to decay and soot-blackening all freestone buildings are in London, is not the adoption of it here well worth our attention?

THE CHELSEA EMBANKMENT.

At the meeting of the Metropolitan Board of Works, held on the 24th ult., a report was presented by Sir J. W. Bazalgette, the chief engineer, on the settlement of the Chelsea Embankment, from which the following is an extract:—

"That the Chelsea Embankment was completed early in 1874; that up to September, 1875, its lines and levels were perfect for its whole length of 4,300 ft.; that about that period its foundations at one point became honeycombed, softened, and undermined, and the foreshore in front of it lowered by the withdrawal of the foundations of old Cadogan Pier by the Thames Conservators; that [settlements on the Embankment began to be observed about this time, which have more or less injured a length of about 300 ft. of embankment nearest the pier, and that the levels and lines of the remaining 4,000 ft. of embankment continue as perfect as ever. We are now driving sheeting piles and groins in front of the toe of the embankment, and have lightened the outward pressure upon the back of the wall, and this appears to have arrested any further movement. It is proposed to protect it permanently by forming concrete counterforts at the back of the wall, which will also form piers for arches under the footway."

Mr. Roche, in moving the adoption of the report, said it would be necessary that they should confer with the Conservators of the Thames, and he suggested that it should go back to the committee for that purpose.

The report was received, and referred back to the committee for the purpose indicated.

THE SANITATION OF HEREFORD.

This was the subject of a paper read by Mr. George Cole, city surveyor of Hereford, at the recent meeting of the Association of Municipal and Sanitary Engineers and Surveyors at Kidderminster. He said that Hereford and its suburbs contained a population of nearly 20,000, but there were not more than 10,000 or 12,000 within the district of the sewerage and water supply. The works were carried out under the direction of Mr. T. Curley, C.E., in 1854, but had been considerably extended since, under his (Mr. Cole's) direction. There was scarcely a house in the city which was not connected with the sewers; all had their water-closets, and nearly all were supplied with the sanitary syphon and trap-system, with self-closing valves, and were supplied with water direct from the mains. The surface water was conveyed into the sewers, and when running full, flushed them effectually after heavy storms. At other times they were flushed weekly by flush-wells at the end of every street. The sewers were well ventilated by open gratings in the centre of the street, varying from 50 to 100 yards apart, and no complaints had ever been made of bad smells from these openings. The sewers were further ventilated by rain-water pipes when these were not near windows, and in some instances by special 6-in. pipes. The cesspools were for the most part filled up. It had often been his lot to find two or three at gentlemen's houses, and Mr. Cole commented on the danger arising when the imprisoned gases escaped into a house. All sewers and drains should be ventilated as much as possible, and no drain in connexion with a sewer should be allowed to enter a house without there being carried up from it a perfectly jointed ventilator. Water-closets should be made outside the external walls of a house, or at any rate adjoining them, so as to admit of free ventilation, not only from the closets themselves, but from the soil-pipes below the traps. The water-closets, in many instances, in Hereford, were not properly ventilated; and Mr. Cole remarked that the better class of society ran more danger from this source than the poor. Earth-closets had been used, but not found successful,—it might be through mismanagement. The inspector had been compelled to report them as nuisances, and had caused them to be made into water-closets. The great drawback to the Hereford sewage was, that it was made to empty itself into the Wye and polluted the stream for a considerable distance. The commercial value of sewage was, he thought, generally much over-estimated; but in an agricultural district, if anywhere, it ought to be utilised. The water supply of Hereford was pumped from the Wye, passed through filter-beds, and delivered in the usual way.

ARBITRATION COSTS.

LOCAL BOARD OF TROWBRIDE *v.* GENERAL WALKER (IN APPEAL).

At a meeting of the Board the Chairman made a cheque for 121*l.* 15s. in order to meet an award against the ratepayers on arbitration. General Walker claimed compensation for alleged damage occasioned by the construction of a main sewer. The General, in the first instance, claimed 500*l.*, but his agent, when before the joint arbitrator, agreed to take 200*l.*, the question of costs and other trifling matters being left for the taxing-master arbitrator.

The decision of the arbitrator fixed the compensation to be paid by the town of Trowbridge for building a public sewer under the General's field at 200*l.*, as per agreement. The town considered this somewhat a heavy verdict if assigned by a jury, and the cheque for the 200*l.* was made as above stated, when the clerk to the Board politely informed the Chairman some more figuring was required. The arbitrator had ordered 115*l.* 10s., the costs of General Walker, to be added to the 200*l.* The clerk next made the not over-pleasant report that he had received a demand from the arbitrator's solicitor for his and the umpire's costs, to the tune of 121*l.* 15s., and this was also to be paid by the Local Board of Health.

The Chairman, before he made out the other two cheques, observed, "He did not like it; he thought it very wrong. When a man asked in the first place 500*l.* for a public improvement, and afterwards, when all expenses had been incurred, came down through his agent to 200*l.*, it was too bad to saddle the ratepayers with the whole of those extraordinary costs in addition."

Another member of the Board observed, "Why, this is not all, for I find that the sum to be paid by us, 437*l.* in rough figures, does not include any of our witnesses or our costs."

The Chairman, scratching his head, replied, "Dear, dear me! Don't you think the Board had better have paid General Walker his 500*l.* and have done with it?"

STRAITS OF BROMPTON.

MARLBOROUGH-ROAD.

The importance of this thoroughfare, to which allusion was made in the *Builder* of the 12th of August, makes it essential to recur to the subject, as since that period the two shops in Fulham-road, adjacent to the corner of Marlborough-road, have been pulled down, and the proprietor is about to erect three new houses, with shops upon a frontage of 42 ft.

Now, the necessity of seizing the opportune moment to effect an improvement induces the suggestion that as the frontage of the draper's shop at the corner is 32 ft., if 20 ft. were given to the road there would remain a frontage of 12 ft. to the Fulham-road, with a lateral frontage of 36 ft. to Marlborough-road and also ample back space for storage and the erection of a spacious and commanding house of business.

This fine and open thoroughfare, connecting the Chelsea and Fulham roads at the most central part, has been long neglected; and now that the Chelsea improvements are being so extensively carried out, it becomes essential that this point of junction should be adapted to the character of the neighbourhood and the requirements of the time. It leads from Chelsea Hospital, direct to the South Kensington Railway and Museum, and the issue would be intermediate between Pelham-crescent, Alexander-square, and Brompton-crescent. This block of two houses, 36 ft. by 32 ft., stands out over 20 ft. across the line of thoroughfare into the

Fulham-road; but the corner house was built nearly a century back, when the neighbourhood was suburban and of small comparative value; since then Whitehead's-grove, Cadogan, and other street-ranges have been erected, issuing into Marlborough-road, which has also been completed within the last century. Seeing that the corner block of buildings (two houses with 36 ft. frontage) projects over 20 ft. into the centre of Marlborough-road, obstructing at its entrance the most frequented and spacious thoroughfare of Chelsea, surely it behoves the Vestries of the two parishes wherein these houses are situated to look after public interests, to rectify so great a blot upon the south-western district, and to open and make straight the way. "Q."

COST OF BOARD SCHOOLS.

THE Brighton School Board, in its triennial report, just issued, gives some statistics with regard to the cost of school buildings obtained from the towns enumerated below, which were selected for a similar return made to the House of Commons about two years since, but as the figures have somewhat altered during the interval, the statistics are given by the Board corrected to the present date, so far as they could be obtained. The amounts given are the average cost per head for sites and buildings.

Board.	Sites.	Buildings.	Total.
	£. s. d.	£. s. d.	£. s. d.
London	5 0 10	9 8 4	14 9 2
Huddersfield	0 15 8	10 2 7	10 18 3
Bristol.....	1 9 0	6 12 0	8 1 0
Nottingham .	3 0 0	9 0 0	12 0 0
Sheffield	1 15 0	8 0 0	9 15 0
Leicester.....	1 11 0	6 11 6	8 2 6
Manchester ..	3 10 10½	9 11 2½	13 2 1½
Liverpool ...	1 16 0	8 17 5	10 13 5
Bradford.....	5 6 1½	17 7 10½	22 14 0
Leeds	2 12 9	9 0 0	11 12 9
Birmingham.	2 5 11	9 4 0½	11 9 11½
Newcastle ...	1 7 6½	11 5 8	12 13 2½
Brighton.....	3 14 8	8 12 7	12 7 3
Halifax	1 17 6	9 18 7	11 16 0

"THE STATUS OF ARCHITECTS."

SIR,—In answer to "Civil Engineer, late Architect," allow me to state my case. I was articled to a firm of architects with a large and varied practice in the country. A premium of 120*l.* was paid down for me, and I had to give my services for five years without any remuneration whatever. At the completion of my articles I attempted to practise for some little time on my own account, but very soon got tired of the not very interesting employment of daily dusting my drawing-board and square, and then looking wistfully out of the window waiting for clients. Occasionally I broke the monotony of my life by going in strongly for competitions. Once I very nigh succeeded, being third in a competition of over thirty. I then tried architect's assistant, but soon found that there was plenty of work, but little or no prospect. Unlike, therefore, your correspondent, I went in for the tempting and discriminating offer of the Horse Guards, and at forty years of age I have an income of about 150*l.* per annum as a first-class military foreman of works, and in two years more shall be entitled to a pension of 1*l.* 1*s.* per week for the remainder of my life; therefore, I contend I have saved the ratepayers from the burden of my support for the remainder of my existence, whereas your correspondent shadows forth that he may ultimately become a pauper. I think you will agree with me that he had better have taken the tempting and discriminating offer. The latter part of his letter I cannot answer, but doubtless there is another side to his statement there. F. W. E.

CARBURETTING GAS.

SIR,—I have read with pleasure the article by Mr. J. Gardner on the manufacture of gas in your last issue. He glances briefly at most of the processes by which, in modern times, particularly during the last few years, it was sought to enrich the quality of ordinary coal-gas, or to substitute the vapours of hydro-carbons. Nearly every one of these latter, as he justly observes, proved conspicuous failures; but he omits the mention of one process for carburetting ordinary gas with the heavy or dead oils of tar which has proved highly successful, and is the property of the Sim and Barff Company.

In proof of this statement, I would beg to refer you to the report of Professor Bloxam upon the carburettors used by that company, which he drew up at the close of a series of exhaustive experiments. In it he says that "these experiments appear to justify the conclusion that the illuminating power of coal-gas may be increased threefold by burning it from a carburettor charged with dead oil"; and further on he gives fifty-four grains as the consumption of this dead oil in one of these carburettors burning 2·9 cubic feet of gas per hour.

The St. Pancras Station of the Midland Railway Company has been lighted by this method since the day it was opened in 1868; and it is beyond doubt that no other station in the kingdom can compare with this in brilliancy of lighting, combined with economy in the consumption of gas. Again, the committee appointed for selecting the best method of lighting the new Royal Exchange in Manchester have also adopted this after the most careful examination, and it has given the most complete satisfaction.

It is a fact that a process does exist by which large consumers of gas can effect a considerable saving at a minimum of cost and trouble.

FREDK. LIVINGSTONE.

TILING.

SIR,—In reply to your correspondent upon this subject I can, from a lengthened experience, confidently recommend that tiling should be *properly* laid in mortar at the top of the tile; for these reasons:—

1. The tiles lie solid. 2. The mortar will get hard, and resist the moisture, which neither hay, straw, nor moss will do; on the contrary, either will court it, and communicate it to the lath and timbers, and the result is early decay. Either will also harbour vermin, which mortar will not. Mortar will also keep out the snow and driving rain, equally if not more so than the others; because the latter in time becomes flattened, the result of continual moisture, and the draught passes over it, taking in snow or rain. If in very exposed situations, the mortar bedding fails to thoroughly resist the driving storms of rain, then point the tiles inside,—called in the country "torching." This is best done while the work is fresh, before the mortar with which the tiles are bedded is dry, as it will be done much easier, and more successfully. Lath and plaster to the underside of the rafters will certainly add to the warmth.

Tiles should not be bedded at the bottom, because in that case the frost will lift and break them. Moreover, as most tiles are at first more or less porous, if bedded at the bottom, the moisture could not find exit.

J. W.

P.S.—Do not entrust your tiling to inexperienced workmen,—a large proportion of the bricklayers know but little about it.

SIR,—In answer to your correspondent, a simple and effective method is to lath the rafters as in the usual method, and tile with nib tiles. If possible, dip the tiles into a tub of water to take off the dust, and take out the suction, then lay in the usual manner in good lime, and hair not too coarse; and, when you have laid from 4 ft. to 6 ft. up from the eaves, get under and point with the lime and hair that have pressed through the joints, and when the whole is done in this manner, and the lime and hair have got hard, put half Portland cement and half fine sand into a pail, with sufficient water to make it about the thickness of paste, keeping it stirred while applying it with a grass brush to the whole of the underside of the tiling, taking care to well fill in all the crevices and round the laths with the lime and hair.

WILLIAM PULHAM, Plasterer.

SIR,—I beg to submit the following opinion for the information of your correspondent, G. H. Palmer. First, the roof timbers should be strong, well supported, and of Gothic pitch; the double oak lath is best, and should be 3½ in. from top to top, the first lath 3½ in. from the face of the building. For brick, stone, or concrete buildings no eave-lath should be used. The under eave of ¾ tiles, 7½ in. long, and tile width should be bedded, the hollow side up, solidly on the top course of brick or stone, and jointed from top to bottom, and should have 2½ in. projection from the face of the wall, and reach 1 in. above the first lath. When dormer windows or other obstructions interfere with the eave, the tiling should be carefully set out, that the bond may work correctly over such obstructions. The tiling should then be started with a half tile or straight from the right-hand side as you face the work; should in all cases be bedded on as much as it covers of the under tiles, and jointed the whole length. The mortar should be composed of fine, clean, sharp sand, and rather more than the usual quantity of lime. The tiles should be used damp, and the bed and long joints kept as close as possible. In no case should a narrow tile be used; and to avoid this and keep the bond true, it is necessary to gauge the width of a few of the tiles, selecting wide ones as No. 1, and narrow ones as No. 2. The mediums go with the unganged tiles. By judicious use of these ganged tiles not only may the bond be kept, but the design (when necessary) worked with geometrical accuracy. To keep tiling clean when in progress a little clean dry sand should be kept strewn upon the work. When the bed joints are fairly set they should be struck with the thick end of a lath, and finely swept along the courses with a birch-broom. When tiling is executed as above, hay, felt, boards, or moss may safely be dispensed with, without fear of snow or rain drifting in. When an air-tight job is required, the *tiling itself* might be rendered on the inside between the rafters. J. H. JOHNSON.

THE ORIGIN OF TOBIN'S SYSTEM OF VENTILATION.

SIR,—It is perhaps hardly worth while to revive the Tobin question, but I have, whilst referring to your past volumes, come across the following passage, and cannot resist the temptation to recall it to your notice. It is an extract from a work called "The Gentleman's Stable Manual." In treating of the ventilation of stables, it directs certain openings to be made in the walls, and then continues:—"Each opening must terminate in a square tube, placed within the stable. Each tube must be 5 ft. high, having an upright position, and secured to the wall by means of holdfasts. They should be 5 in. or 6 in. square, having three sides of wood, the fourth being formed by the wall against which they are fixed. On the top of every tube fix a thick plate of zinc, well perforated with small holes." Is not this "Tobinism"? It appeared in *The Builder*, November 5, 1859. P.

"USE OF CHALK IN BUILDING."

SIR,—Many years ago my client was desirous of erecting a lodge to his park, in which he had the opportunity of quarrying chalk, and we determined to construct the walls above the foundations with that material.

For this purpose chalk was dug out of the lower beds in the autumn, and stacked on its natural bed under cover, but exposed to the wind during the ensuing winter. In the spring it was dressed, and the walls were built, it being again laid on its natural bed. The external face was covered with "rough-cast." The last time I saw the lodge, a few years back, it was standing well.

The result of our experiment did not lead us to think we had adopted an economical scheme on account of the large amount of chalk necessarily quarried above that ultimately available for use. JOHN TURNER.

THE LARGEST ROASTING-JACK IN ENGLAND.

MESSRS. FEETHAM, of Soho-square, are at present engaged in fitting up a jack for the kitchen of the residence of the Duke of Westminster known as Eaton Hall. It is 22 ft. in length. The motive power is water, which is conveyed from the cistern to the water-wheel by a ¾-in. pipe. The wheel is 4 ft. in diameter and 5 in. in breadth, and it sets in motion six horizontal and four vertical spits. Over the wheels which communicate motion to the spits are five oil-boxes. The jack is capable of cooking about a ton of meat. It is entirely under the control of the cook, who can regulate its speed by simply turning a water-tap. The wheel will not be hidden from view, and will be enclosed in a glass case, and surmounted by an arch in ornamental brickwork. The design, with some few alterations, is that of Mr. W. Eden Nesfield, who has also supplied working drawings of the machinery.

Death of a Belfast Builder.—The death is announced of Mr. Thomas M'Keown, builder, of Grosvenor-street, Belfast, at the comparatively early age of 48. The contracts for the erection of the Masonic Hall, Arthur-square, and of the Theatre Royal, were entrusted to Mr. M'Keown.

BELL FOUNDING.

In reference to the details on this subject published in the *Builder*, p. 1127, some interesting intelligence reaches us from France. Some experiments have been carried out by Messrs. de Ruolz, Montchal, and De Fontenay, on the application of the new metal of phosphuret of copper and phosphorised bronze to various industrial purposes. Phosphor-bronze is now well known as the material from which the guns of the Austrian artillery are being made. The above-named gentlemen have discovered that bells cast of this metal are much superior to those of ordinary bronze. Two bells, presented by them to the French Academy of Sciences, were tested before that society. One made with phosphuret of copper, in the proportion of $\frac{8}{1000}$, gave sounds much superior in acuteness, intensity, and tone, to those produced by a bell of ordinary bronze,—seventy-eight parts copper and twenty-two parts tin. Its composition was also more homogeneous. A bronze alloy with the proportion of $\frac{3}{1000}$ of phosphorus sustains friction well, and can be indefinitely recast without appreciable loss of bulk.

The clear sounds produced by glass vessels when struck are well known. The brittleness of the material, however, prevents its use for this purpose. It would be interesting to discover whether the "toughened glass" of M. de la Bastie could be made available for the manufacture of bells. If the clearness of tone is not affected by the toughening process, experiments in this direction are worth trying, and we would suggest the idea to those practically engaged in the subject.

A CYCLOPEAN HOUSE IN MYCENÆ.

In the course of the accounts sent to London of the excavations now going on in Mycenæ, Dr. Schliemann says:—To the south of a circular parallel double row of sepulchres my excavations have brought to light a vast Cyclopean House, which, so far as it has been uncovered, contains five chambers intersected by four corridors of 4 ft. breadth. The walls still retain here and there their clay coating, which, however, shows nowhere a trace of painting. The walls are from 2 ft. to 4 ft. 6 in. thick, and one and the same wall is in some places 6 in. to 8 in. thicker than in others. The largest room is 18 ft. 6 in. long by 13 ft. 6 in. broad, and its east side is cut out in the rock to a depth of 1 ft. 4 in. As well below this as below the adjoining room a deep cistern is cut out in the rock; the water is conducted into it by a cyclopean water-conduit, which leads down from the hill. Although there are no windows in the house, and although the scanty daylight through the doors must have been still diminished by the cyclopean circuit wall, which is only separated from the west side of the house by a 4 ft. broad corridor, yet this seems to have been the royal palace, because no building in a better style of architecture has been found yet in the Acropolis. Certainly his Royal Majesty was not comfortably lodged in such a house, but comfort being unknown, it was unmissed. On the other hand, the objects discovered in this house prove that the family which occupied it had pretensions to luxury. In one of the chambers, at a depth of 23 ft. below the surface, was found a finger-ring cut out of a splendid white onyx, with a seal, on which are incised two animals without horns. At first sight they certainly appear to be hinds, but attentive examination shows that the artist's intention had been to represent cows; both turn round their heads and look on their calves, which suck the milk from their udders. Though in a very archaic style, the incision is nevertheless well done, the anatomy of the animal is observed with accuracy, and one feels astonished how it ever was possible to do the work without a magnifying glass. In seeing the incision and thinking that it belongs to an antiquity by centuries preceding Homer, we are ready to believe that all the works of art mentioned by Homer—the wonderful shield of Achilles, the dog and the hare in Ulysses' mantle-clasp, Nestor's goblet, &c.—all existed at his time, and that he merely describes what he saw with his own eyes. There are further found in the cyclopean house perforated convex pieces of agate or serpentine, derived from necklaces—some with an incised spiral ornamentation, others with incised ornamentations of horses or deers. There was also found a formstone of jasper, showing on all six sides most fantastic types for casting gold or silver ornaments; it had also a type for casting those frequently-found curious conical objects of a black glassy substance, with spiral lines and a perforation on each side for suspension with a string. Further on some beautiful axes of jasper or green stone, many whorls of blue stone, and a great many splendid terra-cottas, of which the large vases with two or three handles, the ends of which have been modelled into the shape of crocodiles, deserve particular attention. The whole vases are covered with representations of warriors of a dark red colour on a light yellow dead ground, wearing coats of mail, girdle belts, κνημιδες, sandals, and either shaggy helmets, with stings or pricks like the skin of a porcupine, or helmets with long crests. From the front side of the helmet always protrudes an object in form of a horn. The warriors are invariably armed with large round shields, the lower part of which is always cut out in form of a crescent; also with lances.

MONUMENTAL.

Edinburgh.—It will be remembered that Mr. John Hutchison, R.S.A., had just completed, towards the end of July last, his statue of the late Mr. Adam Black, when, by an unfortunate accident, the model was almost entirely destroyed. It is stated that, in the short interval which has since elapsed, the sculptor has made good the damage, and has once more got his work nearly ready for casting. While the limbs and torso of the statue were completely wrecked, the head, in which the artist was considered by Mr. Black's friends to have secured a telling likeness, happily escaped without injury. It has, therefore, only been necessary to remodel the figure from the neck downwards.

Denbigh, North Wales.—On Thursday, Nov. 23rd, a statue in honour of Dr. Evan Pierce, coroner and magistrate of this town, was unveiled by Sir W. Grenville Williams, bart., M.P. The statue is of Sicilian marble, of colossal proportions, and rests on a column 50 ft. in height. The doctor is represented and clothed in a professor's gown, in the act of addressing an assemblage, the right hand resting in folds of drapery, the other holding a scroll. It is the work of the sculptors W. & T. Wills, of London. Mr. Underwood was the architect, and Mr. Jones, of Rhyl, the builder.

Glasgow.—Messrs. Stewart, McGlashen, & Son, of Edinburgh, have just completed a monument for erection over the grave of the late Rev. Dr. Buchanan, in the Necropolis, Glasgow. The monument takes the form of an Ionic cross, the pedestal of which is 3 ft. 3 in. in height, and the cross 8 ft. 9 in. in height, making the total height from the ground 12 ft. The whole design, which is in keeping with the early sculptured crosses of Scotland, has been executed in Sicilian marble, chastely but artistically worked. The front and edges are enriched with ornament of a Celtic type.

Kidderminster.—Well-nigh forty years have flown since the establishment of the penny-postage system, and only now when Sir Rowland Hill, the organiser of the reform, is in his eighty-fifth year, is it proposed to erect a statue in his honour. The movement has begun in Kidderminster, his native town, where, at a public meeting, it has been determined to raise a substantial memorial, at a cost not exceeding 2,000*l.*

AN INDIAN PALACE.

The *Times of India* gives a description of Scindiah's new palace at Gwalior in which he entertained the Prince of Wales when his Royal Highness visited Central India, in the course of which it says:—"There is no doubt that the Maharajah's new palace and grounds at Gwalior are the handsomest of their kind in India. The Prince and suite pronounced this opinion, and in all probability Gwalior will, in time, attract sightseers in much the same way as Delhi, Lucknow, and Agra. The building has been erected in the Phoolbagh, and has been named Jye-in-dur-bhovan, or Abode of the Illustrious. The palace alone covers an area of 124,771 square feet, exclusive of the inner square, which is 321 ft. 6 in. by 321 ft. The palace is double-storied throughout, and in some places has three and four stories. Its highest parts measure 106 ft. from the ground. The first story is of Tuscan, the second Italian Doric, and the third Corinthian architecture. The interior of the durbar-hall measures 97 ft. 8 in. in length, 50 ft. in width, and 41 ft. in height. Its roof is arched with solid stone slabs, each measuring 21 ft. in length, which enabled the architect to make the ribs so prominent. They run from one end of the hall to the other, and rest on each end on double Corinthian columns, which form a colonnade all round the interior of the hall. The room is magnificently painted, and the whole hall is lavishly gilded. Upwards of 3,000,000 gold leaves were used for this work. The walls have been almost hidden by gigantic mirrors, and the huge chandeliers which hang in the centre are the largest ever imported. All the glass fittings are by Messrs. Osler & Co., even to the grand staircase at the main entrance of the durbar-hall. This staircase is entirely of glass and marble. In addition to the large ruby chandelier which hangs between the wings of the staircase, statuettes and the other *objets de vertu* adorn the room, which is roofed with stone slabs, each 30 ft. in length. The room on the opposite side is roofed in the same way. The two rooms which flank the durbar-hall are furnished superbly. One is the banquet-hall, and the other contains the costly gold and jewelled throne and canopy, and the portraits of her Majesty and the Prince and Princess of Wales. This room is a sort of ante-room to the durbar-hall. Another room contains a life-sized oil painting of his highness Scindiah, and has some very costly fittings. All the apartments are beautifully carpeted. The palace itself cost a little above 11 lakhs of rupees, but the garden-walls, iron railings (all cast in Gwalior), the garden furniture, glass staircase, chandeliers, have cost nearly nine lakhs more. The area of the garden and palace park is above one square mile. The grounds are tastefully arranged, and the water runs here in a stream, falls like a crashing cataract there, and springs up in a hundred places in lively fountains. The water which feeds the garden stream comes down in a canal for a distance of fifteen miles. The whole plan of the palace and park, and the construction of them, the plan of the watershed, and the construction of the canal,—in short, every bit of the work, has been done by Major Michael Filose. . . . . The Prince of Wales spoke so highly of the palace, and so often broke out in enthusiasm about the picturesque park, that after the departure of his royal visitor Scindiah made Major Michael Filose a present of a lakh of rupees."

DRAINAGE WORKS.

Arnold Local Board of Health.—At the monthly meeting of this Board, held at the Public Offices, Arnold, Mr. Phipps in the chair, Mr. Fred. Jackson, of Nottingham, the consulting engineer of the Board, attended, and submitted plans and sections of the proposed sewerage works to be constructed in Arnold, and to join the main sewer in Church-street, Basford, in connexion with the Leen Valley sewerage scheme. The estimated cost of the works is 6,500*l.* The plans provide for flushing near Queen-street, Gedling-road, and at Daybrook. It was agreed that the works be passed, and that application be made to the Local Government Board to lend the money, repayable in fifty years.

PARTY STRUCTURES.

Sir,—I shall feel obliged if you will kindly let me have a brief reply to the following questions:—

Jones, under sec. 88, clause 7, and sec. 83, clause 7, of the Metropolitan Building Act, pulls down the party fence wall separating his garden from Smith's, and, under sec. 83, clause 6, raises same for the purpose of erecting stables on his land. Some four or five years elapse, when Smith wants to build stables, and he serves notice on Jones, under s. 83, clause 8, of his intention to cut into the party structure to insert corbels to hold plates to support his floor. Query, Is Smith bound to pay Jones for a moiety of the wall built by him in excess of the height of the old party fence wall? and, if so, under what Act?

F. H. Basley.

*** Yes. It belongs to Jones, and Smith, if he make use of it, must pay his proportion of the value of it. Jones could recover, we apprehend, at common law. As a matter of fact, a party garden wall is not a party-structure under the Metropolitan Building Act.

New Waterworks for Galashiels.—The heavier part of the works for introducing a water-supply to Galashiels has been undertaken by Mr. James Young, Roslin. The contract comprises the large compensation reservoir at Stantling Crags, and the clear-water reservoir at Knowes Dean, as well as the intake dam and piping from Caddon to Knowes Dean. The contract price is stated to be 17,788*l.* 11s. 11½d. It is believed the total cost of the works will not exceed the original estimate of 30,000*l.*

A NEW PARK FOR PARIS.

THOUGH possessing so many parks and public gardens, not to mention innumerable broad streets and boulevards resplendent with foliage, the Parisians are not yet satisfied. Another park is in the course of construction, and more than three hundred workmen are employed over the task. For this purpose a sum of 12,000*l.* has been at the disposition of M. Alphand; the various roads and paths are already traced, the greater part of the trees are planted, and the workmen have begun to dig out the three artificial lakes, which will be among the chief attractions of the park. The place selected for these pleasure-grounds certainly wanted improvement. Its general aspect and associations were not of the most pleasant description. The new park is situated to the south of Paris, on the hillocks which form the left bank of the Bièvre, and from whence a splendid view can be obtained of the Observatory, the Val-de-Grace, the Panthéon, Paris, and the hills which shelter the north-east of the city. The park will extend over more than than sixteen hectares of land, and will be entered by four gates, giving respectively one to the Boulevard Jourdan, Rue Nansouty, Rue Gazan, and the Avenue Reille; but the principal entrance will face the prolongation of the Boulevart d'Enfer. The portion of this thoroughfare, extending from the Sceaux Railway Station to the park, will henceforth be called the Avenue de Montsouris. The park also will be named after the quarter on which it is laid out, notwithstanding the dismal significance of the word. Montsouris was formerly a miserable little hamlet called Mange-Souris; for the inhabitants were so poor that they were described as feeding on mice. It was here also that the celebrated giant or brigand Isoire, the hero of so many romances, was buried in 1664. His tomb, one of the curiosities of Paris, was reconstructed by Antoine Cabot in 1777. This place, indeed, has always been associated with the burial of the dead. All ghosts and goblins, giants and other mystic personages of ancient legends are generally made to issue from the Tombe Isoire, and the superstitious Parisian looks in the direction of Montsouris when he anticipates some supernatural apparition. Nor is it difficult to account for these delusions. The chief entrance to the catacombs is at Montsouris, and it is here that all the bones collected from the Cimetière des Innocents and other burial-grounds were brought and deposited.

These gloomy associations will, however, be soon obliterated by the exceptional attractions of the new pleasure-grounds. Besides the beauty of the flowers, and the verdure of the park, visitors will be able to examine the Palais du Bardo, which was one of the curiosities of the Exhibition of 1867, and now serves as an observatory. This and other observatories close at hand have been established by the War Department to be used as special laboratories, to facilitate geographical studies among naval and military officers. Altogether, therefore, the Parc de Montsouris will be to the Parisians who live south of the Seine what the Parc des Buttes de Chaumont is to the inhabitants of the northern districts. So much has already been done to increase the beauty, the luxurious aspect, and sanitary condition of the western or wealthy quarters of Paris, that we cannot but welcome this effort to place a garden of health in the midst of the poorer dwellings of the industrial classes.

BUILDERS' BENEVOLENT INSTITUTION.

THE forty-sixth election of pensioners on the funds of this Institution was held on Thursday last at Willis's Rooms, St. James's, Mr. Charles B. Waller, president, in the chair. There were two vacancies,—one for a man and one for a woman. The following is the list of candidates, with the number of votes recorded for each, viz.:—Henry Atkins (third application), 4,522; J. T. Brown (first application), 838 (including 52 votes allowed in consideration of Mr. Brown having been a subscriber to the Institution for thirteen years); Eleanor Winter (second application), 2,098; Susannah Webb (second application), 1,644; Elizabeth Thorn, 1,277; and Ann Noyes, 193. The successful candidates were therefore Mr. Atkins and Mrs. Winter.

Votes of thanks to the scrutineers and the chairman concluded the proceedings of the election, after which Mr. Thomas Stirling was presented with a piece of plate, subscribed for by the members of the committee of management, in recognition of the zeal and efficiency with which he discharged the duties of honorary secretary to the Institution for a period of several months after the death of the late secretary, Mr. A. G. Harris.

At the next election of pensioners, there will be a larger number of candidates elected.

Mr. F. W. Keeble has accepted the position of hon. secretary to the annual ball of the Institution, which will take place on the 18th of January, 1877.

SURVEYORSHIP ITEMS.

Chiswick.—At a meeting of the Chiswick Improvement Commissioners, held on the 22nd ult., Mr. H. O. Smith was elected engineer and surveyor, at a retaining salary of 300*l.* per annum, with no restrictions as to private practice, but to hold no other public appointment without their consent in writing. There were ninety-six applicants, and these were reduced to eight, from which the final selection was made.

Croydon.—From six candidates who had been selected by the General Purposes Committee of the Croydon Local Board of Health, Mr. Laffen has been chosen to fill the office of Assistant Surveyor.

A NEW HALL IN KENSINGTON.

AT the vestry on Tuesday night, Sir W. Fairfax in the chair, a report was brought up with reference to particulars for the guidance of architects in designing plans for the new building to be erected for the vestry and its officers. The style of architecture agreed upon is C'a sic; the front walls may be brick and stone, but stucco is not to be used. The estimated cost (exclusive of furniture) is not to exceed the sum of 18,000*l.*

Mr. Boutcher wished to know what the vestry meant by the term "Classic."

Mr. Davis said it was put in to exclude Gothic.

After some discussion with regard to the style of architecture, it was resolved that it should not be either Gothic or Elizabethan. With a few verbal alterations the particulars were adopted.

THE NEW BRIDGE OVER THE REGENT'S CANAL, CHALK FARM-ROAD.

SIR,—We notice the description of the above bridge in your issue of the 18th ult., and request you to be good enough to notice in your next that this firm supplied and erected the whole of the iron-work. It is not correct to say, "There are mains formed in the girders 3½ in. diameter."

The novel feature of utilising the two main girders to serve as gas-mains emanated from, and has been carried out by, us. We have constructed these girders so as to be quite gas-tight; they, of themselves, serve as gas-mains, and the passage in them for the gas is 3 ft. by 1 ft. in the clear, = 3 ft. square in area.

MATT. T. SHAW & CO.

RICHMOND PARK.

SIR,—I have read your article on Richmond Park, in last week's *Builder*. I think it quite time that the Office of Works had the entire control of the park, and that preservation of game in a public park so near London was abolished. The enclosures should be thrown open to the public. Certain portions of the park should also be set apart for football, cricket, and other athletic sports. I trust you will assist to obtain such a desirable change in the management. A RICHMONDITE.

PHILADELPHIA EXHIBITION AWARDS.

SIR,—In your last issue is a letter signed "G. H.," which speaks of the productions of certain particularised exhibitors. This would have been of more value had the writer given his name, which would possibly have satisfied as to his judgment and claim to speak with authority on this subject. We observe that our exhibit is not referred to by your correspondent, and we take a course unusual with us, in asking your permission to state that we are recipients of two medals for metal work; that a portion of our exhibit has been purchased by the Pennsylvania Museum and School of Art, and that that Institute has signified its desire that some further portion thereof may be placed on loan with them.

HART, SON, PEARD, & CO.

The District Surveyorship of Bethnal-green (East).—This office, vacant by the death of Mr. R. Culver James (as announced in the *Builder* last week), will be filled up on Friday next, the 8th inst., by the Metropolitan Board of Works. There are many candidates for the appointment.

ACCIDENTS.

A TELEGRAM received at New York, on the 19th ult., announces that the floor of a crowded theatre at Sacramento, in California, fell in on the previous night. Seven persons are said to have been killed and 100 injured, many of the latter fatally.

On the 17th ult., while a number of men were at work upon a scaffold on the spire of the new Wesleyan Church, Windsor, 90 ft. high, one of the supports broke, precipitating three men from the roof. Two were dreadfully injured, one, it is feared, fatally. Both were removed to the Royal Infirmary.

CHURCH-BUILDING NEWS.

Warthill.—The new church of St. Mary, Warthill, near York, has been consecrated by the Archbishop of York. The church has been erected from designs and under the direction of Mr. J. G. Hall, of Canterbury, and is in the early Geometrical style of architecture. The building consists of a nave 40 ft. long by 19 ft. wide, chancel 18 ft. long by 16 ft. wide; on the north side is the vestry, and on the south side a tower, under which is the principal entrance to the church. The roof to the nave is open timbered, stained and varnished, with moulded ribs resting on stone corbels. Sitting accommodation has been provided for 120 persons. The exterior of the building is faced with grey or mottled brick, with Yorkshire stone dressings to the buttresses, body of tower, and windows. The roofs are covered with thick Welsh slates. The tower contains three new bells, cast by Messrs. Warner & Sons, of London. The whole cost of building the church has been borne by Mrs. and Miss Agar, of Brockfield, near York. The contractors were Mr. Clark for the masonry, Mr. Rookledge for all the joinery and carving, Mr. John Nichols for bricklaying, and Mr. Hodgson for the coloured and plain glazing.

Felkirk.—The parish church of Felkirk, near Barnsley, has been re-opened for divine service, after having been closed for twelve months. During that period it has undergone a process of renovation. The galleries have been removed, and the high-backed pews of the nave and aisles replaced by open benches in oak. The walls were in a tolerably good state of repair, and it has not been found necessary to rebuild any portion of them. The aisle roofs have been completely restored in substantial oak. The pulpit, which was formerly in the nave, has been placed against the north pier, and the reading-desk on the opposite side. A carved oak lectern, the gift of Mr. Ramsbottom, stands midway between them, at the top of the nave. The total cost of the alterations amounts to 2,600*l.*

Bryn Eglws, Denbighshire.—The parish church of Bryn Eglws was re-opened on the 31st ult., after restoration under the direction of Mr. Arthur Baker, architect, at a cost of nearly 1,000*l.* Bryn Eglws is situate in a romantic valley at the extreme end of the Clwydian range of hills. The old church and private chapel connected therewith, which is the property of the Yale family, of Plas yn Yale, date back beyond the Conquest.

Birmingham.—An effort is now being made to restore, or rather to completely rebuild, St. Luke's Church, Bristol-street, Birmingham, any attempt to patch or repair it being declared to be utterly useless. In its present condition it is said to be positively dangerous, and both Mr. Chatwin, the architect, and Mr. Briggs, a builder, who have been consulted on the matter, agree that nothing short of taking it down will effectually meet the case; for although erected only a little over thirty years ago, the sandstone of which it has been constructed is completely decayed. Mr. Chatwin has prepared designs for a new structure, and these having been fully approved of, all that is now required is the necessary amount of money for carrying on the work. Altogether the rebuilding will cost about 7,000*l.*

St. Mary Cray.—The chancel of the parish church of St. Mary Cray has been re-opened, after restoration. The church, which has many points of interest, and dates from about the end of the thirteenth century, was partially restored in 1862, but much remained to be done in the chancel. In June last the Ecclesiastical Commissioners undertook to completely restore the chancel, and this has now been done under the direction of Mr. Ewan Christian, the Commissioners' architect. The south wall was found so rotten (the church is built of flint throughout)

that it had to be rebuilt all but about 100 square feet; in this part has been opened out a perfect hagioscope. The works have been carried out by Mr. Bridge, builder, of Maidstone.

Epsom.—Christ Church, Epsom, was consecrated by the Bishop of Winchester, on the 17th ult. The church has been erected on a piece of waste ground at Epsom Common, in the manor of Horton, and is situate about three-quarters of a mile to the south-west of the town. It is built in the Decorated Gothic style, of rough whole flints, dug from the neighbourhood, with Bath stone quoins and dressings, and measures 120 ft. by 45 ft., intended to be increased at some future date to 56 ft., by the addition of a south aisle, and a tower has yet to be constructed. The sittings number 464, all plain and open, and of which 400 are to be free. The flooring in the body of the church is plain wooden, save the aisles, which are paved with Godwin's quarry tiles, while in the fine chancel encaustic tiles are laid down. Nearly the whole of the fittings, including an organ, built by Hill & Sons, have been given by members and friends of the congregation. The edifice was designed by Mr. Blomfield, and the builders are Messrs. Adamson & Sons, of Putney. The total cost of the structure has been 6,500*l.*

Pebmarsh.—The parish church of St. John the Baptist, Pebmarsh, has just been restored at the hands of Mr. Harcourt Runnacles, of Halsted. The church formerly belonged to the Priory of Clare, in Suffolk, founded by Eluric, son of Wighar. In the reign of Edward the Confessor, Gilbert de Clare, son of Richard Fitz Gilbert, Earl of Brion, gave the Priory with all its Prebends to the Abbey of Bec, in Normandy, about the year 1090.

Polegate.—The new church of St. John, in the hamlet of Polegate, Sussex, was opened for worship on the 10th ult. It is built externally of Kentish rag, Bath stone being used for the facings and tracery of windows, the internal walls being of red brick. The roof, an open timbered one, is covered with local red tiles, and a tower and spire are situate at the north end, the lower part of the tower forming a porch entrance. The extreme inside length is 82 ft., and width, 26 ft., the chancel being 24 ft. by 20 ft. The height of the nave is 36 ft., the chancel 30 ft., and the spire 63 ft. The plan consists of a nave, with open seats to accommodate 210 persons; a chancel, fitted with choir-stalls, &c.; a vestry adjoining the chancel, with space for an organ at the back of the choir-stalls on the south side. The aisle and open spaces of the nave and the floor of the chancel are paved with Minton's tiles. The heating is effected by means of Gurney's patent stove apparatus. Messrs. Blessley & Spurrell, of Eastbourne, are the architects, and Mr. Peerless, of the same town, was the builder, the total cost being 2,620*l.*

Hyssington.—In the summer of last year it was determined to pull down the old church and to build one as nearly as possible on the same site. The old church was a plain rectangular building, with rubble walls, 5 ft. thick, without a single architectural feature worthy of preservation. The roof was covered with heavy old stone tiling, which was rapidly breaking the back of the church. The interior consisted of a nave and belfry, divided by a lath-and-plaster partition, and the arrangement and fittings quite accorded with the generally dilapidated state of the building. The new church is in the Late Decorated style, and consists of nave and chancel under one roof, and a small vestry. The distinction between the nave and chancel is marked by a buttress, and the chancel is further distinguished by a string-course. The old bells (one bearing the inscription *Sancta Etheldreda ora pro nobis*) have been fixed in a double bell-cote. Internally, the chancel roof consists of carved rafters of pitch-pine, boarded diagonally on the upper side, and the nave roof is similarly boarded on the top of plainer rafters. The chancel floor is laid with Godwin's encaustic tiles, and the nave floor with Corndon flag. The old carved oak Jacobean pulpit and the sexagonal font have been remounted and retained, at the expense of the late vicar. The new church was consecrated on the 24th ult.

Chudleigh Knighton (*Devon*).—The little church of St. Paul, built by Sir G. G. Scott, R.A., some six-and-thirty years ago, has just been restored. Cruciform on plan, and consisting of nave, chancel, and transepts, the church was built entirely of flint, with limestone dressings. It is in the Early English style, all the windows being lancet-headed ones. A general renovation being necessary, designs were prepared, and have been carried out under the supervision of Mr. R. Medley Fulford, architect, Exeter. The various defects which three dozen years have brought to light in the building have received careful attention, and the whole of the body of the church has been reseated throughout with open pitch-pine benches. A new pulpit is in the same material. There is a low chancel-screen with traceried panels and carved terminations, also in pitch pine, and forming a unique and good feature. The avenues are laid with encaustic tiles. The communion-table has been elevated, and is now reached by four steps. Behind it is a carved Bath stone reredos. This is divided into three compartments, the central one being gabled and further ornamented by the introduction of a large foliated cross in polished alabaster. The backs of the three panels have sgraffito work introduced into them, and this style of ornamentation is, we believe, to be used in other parts of the church. A new stained glass window over the table is by Mr. Drake, of Cathedral-yard, Exeter. The carved work and the reredos are by Mr. Harry Hems. The contractor for the whole of the works was Mr. John Mills, builder, of Newton Abbott.

Wanstrow (*Frome*). — The parish church of Wanstrow, near Frome, has been recently repaired and altered to a considerable extent. New roofs have been put throughout (the church in plan consists of nave and chancel, north and south transept, tower, chancel, aisle, and a new vestry), the west wall and the chancel arch taken down and rebuilt, the chancel rebuilt, and a great portion of the south transept and chancel aisle also. The tower being modern has scarcely needed any repairing. The roofs are of fir timber, with wagon-headed wood ceilings under, panelled and cusped, the nave and chancel ceilings being the most ornamental. Externally, the new roofs, like the old ones, are covered with the stone tiles so characteristic of the neighbourhood. The whole of the old pews, also west gallery, have been removed, new floors put, and open square moulded-end benches put. The church will now accommodate 160 worshippers. The walls have also been re-plastered. The gangways of the nave and north transept have been paved with adamantine clinker bricks, banded and bordered with slate. The chancel, south transept, and chancel aisle are paved with encaustic tiles. In the new chancel a great deal of the jambs of the old windows has been reused, and the ancient piscina discovered embedded in the walls has been reinstated, in proper position. A small vestry has been added on the north side of the chancel, roofed by a lean-to. Traceried wooden screens divide the south transept and chancel aisle from the rest of the church. New doors of different design have been placed to each entrance. There is a new pulpit, with perforated oak panels in the upper part, and a Ham-hill stone base; the font, with its square moulded and carved panels on each side, is of Corsham Down stone. In style, the church was Early Decorated, the unusually low pointed segmental arches being remarkable. The church is warmed by one of Porritt's underground stoves. The works have been carried out by Mr. John Vallis, builder, of Frome, Mr. Ferrey, F.S.A., and Mr. Edmund B. Ferrey being the architects. The total cost has been about 1,500*l.*

WINCHESTER HOUSE.

The recent purchase of this building by the Government was announced in No. 1750 of the *Builder*. In the recent biography of the late Dr. C. R. Sumner, D.D., by his son, it is explained how this house became the property of the bishop, and his town residence as prelate of Winchester. In Mudie's "History of Hampshire," vol. i., pp. 63–4 (1839), it is stated that "The palaces erected in Winchester have been subject to the same fluctuation and decay as monasteries and fortified castles. To the southward of the ivy-clad remains of Wolvesey Castle, and near the chapel, a structure of modern date, Bishop Morley began in 1684 a splendid palace for an episcopal residence. The building proceeded slowly, and was completed by Bishop Trelawny, the successor of Morley; and after his demise, in 1721, seven years after, the laying of the foundation, and scarcely ten years after its completion, it was partially in ruins. The bishops having preferred the castle of Farnham as their principal country residence, Bishop Morley's palace has disappeared, except one of its wings, used as an occasional residence of the prelate." Mr. Joseph Moser, A.D. 1803, a notable antiquary, stated that at Bishop's Sutton, A.D. 1773, were ruins of a large building supposed to be the walls of a former palace of the bishops of Winchester, one of ten palaces or manor-houses, at Wolvesey, Southwark, Waltham, Marwell, Esher, Farnham, Wargrave, Taunton, and Highclere. Waltham Palace, at Bishop's Waltham, is described and engraved in Warner's "History of Hampshire," vol. i., p. 266, and in Mudie's, vol. ii., pp. 170–2. It was founded by Bishop de Blois, in the middle of the twelfth century. William of Wykeham repaired and rebuilt this edifice. The remains of the hall indicate a length of 66 ft., a breadth of 27 ft., and a height of 25 ft. In Warner's work, the remains of Wolvesey Castle, and the chapel of Wolvesey, are engraved (two views) and described (vol. i., pp. 270–1) at length.

At the commencement of the twelfth century, Giffard, Bishop of Winchester, erected a residence in Southwark for this see, which had a park of sixty or seventy acres. A.D. 1642, this palace was abandoned, and A.D. 1663–4, Bishop Morley purchased a new Chelsea mansion from the Duke of Hamilton, at the price of 4,250*l.*, pursuant to an Act of Parliament. A.D. 1821, Bishop Tomline, by virtue of an Act of Parliament, sold this residence for 6,000*l.*, described and engraved in the *Gentleman's Magazine*, vol. xcii., p. 516; and when Dr. Sumner became bishop of this see, A.D. 1827, the residence in St. James's-square was bought with the proceeds of sale and of timber. Until now it has remained as the town residence of the bishops of this diocese. Wolvesey and Farnham Castles were erected by Henry de Blois. At Wolvesey Queen Mary lodged before her marriage with Philip of Spain. It was destroyed by Sir W. Waller's army during the civil war. See Milner's "History of Winchester," vol. ii., chap. v.; and Leland, Itin., vol. iii., p. 99. In Mr. Cassan's "Bishops of Winchester," vol. ii., the palaces at Waltham, Farnham, Winchester, Chelsea, and Southwark are described at length. Farnham Castle, built by De Blois, belonged to this see originally, A.D. 1129. It was seized by Louis, the Dauphin of France; but shortly afterwards Henry III. recovered the castle. In 1642 it was injured by the rebels, and subsequently it was dismantled as a fortress. The *Gentleman's Magazine*, N. S., vol. ii., p. 372 (April, 1839), contains an engraving of another Winchester House, then recently destroyed. But this ancient building had belonged to the Paulets, the site having been given by Henry VIII. to the 1st Marquis of Winchester. The land had belonged to the Austin Friary until the Reformation. The outer gate shown in this view, with its shell-formed pediment, is stated to have been an example of the massive entrance-porches to old London mansions. These buildings were on the west side of Broad-street, and on the south side of Winchester-street, in the City of London. The *Gentleman's Magazine*, vol. lxi., p. 1160 (1791), and vol. lxxxiv., p. 529 (1814), contain an engraving of Southwark Palace, showing that it must have been an extensive building. Farnham Castle is engraved in Manning and Bray's "History of Surrey," vol. iii., pp. 134–5. The three views show, respectively, the castle, the keep from the south-west, and an inner room, then (1814) used as the servants' hall.

Chr. Cooke.

Books Received.

The Complete Practical Machinist. By Joshua Rose. Philadelphia: Henry Carey Baird & Co. London: Sampson Low, Marston, Searle, & Rivington. 1876.

This is essentially a book for those who are usually called "practical" men,—workmen,—mechanics. It treats of tools and how to use them, in lathe work, vice work, drills, taps and dies, hardening and tempering, &c., illustrated by many excellent engravings; and thus far it conveys instruction how to do good work in a machine-maker's shop. Towards the end of the book is an explanation of the action of the slide valve, which is very plainly stated.

A Treatise on Lathes and Turning. By W. Henry Northcott. 2nd Edition, with 338 Illustrations. London: Longmans, Green, & Co. 1876.

The author is a member of the Turners' Company. In addition to numerous illustrations of parts of machines, and of tools, views of complete lathes are given from photographs furnished to the author by Sir Joseph Whitworth & Co.,

Messrs. Fairbairn, Kennedy, & Naylor, and other eminent makers. Besides the ordinary operations of turning, boring, drilling, planing, wheel-cutting, &c., ornamental turning, cutting, and carving, are treated of to some extent; and the author promises another volume which is to be devoted exclusively to examples of plain and ornamental turning.

The Timber Merchant's and Builder's Companion. Third edition. By WILLIAM DOWSING (Timber Merchant, Hull). London: Crosby Lockwood & Co. 1876.

CONTAINS new and copious tables of the reduced weight and measurement of deals and battens of all sizes, from one to a thousand pieces; also the prices per foot relatively to the prices per Petersburg standard hundred; and other useful and valuable information concerning foreign timber.

Wood Conversion by Machinery. By JOHN RICHARDS, M.E. London: J. & W. Rider. 1876.

SAWS and sawing are what the author treats chiefly upon. He offers also some useful remarks on foundations for machines, and enumerates the inventions of Sir Samuel Bentham pertaining to wood-cutting, and adds some remarks on longitudinal and transverse planing. The articles are reproduced from the *Timber Trades Journal* of 1875.

Miscellanea.

The Philipson Orphanage, Newcastle-on-Tyne.—The Philipson memorial building, erected at the Moor Edge, for the boys of the Northern Counties Orphanage, and named the Philipson Memorial Orphanage, has been opened. The building has been erected mainly at the cost of Mr. Hilton Philipson to perpetuate the memory of his late mother (the wife of Mr. R. P. Philipson, the Town Clerk of Newcastle). The new building has cost about 10,000*l*. The building, which was designed by Mr. G. T. Redmayne, of Manchester, is simple Gothic in style, and it is built of local grey bricks, with a slightly red brick in bands of one brick every four courses. The building has round-arched window heads, with stone labels and string courses, and moderately steep-pitched roofs, broken up with dormer lights to the top story. It has a frontage of 123 ft., and a tower rises at the south-west corner to a height of 20 ft. On the ground-floor there are school, class, and dining rooms, committee's room, matron's room, apartments of the master and assistants, and kitchen, offices, lavatories, &c. There are two school-rooms; one 34 ft. 6 in. by 18 ft., and the other 37 ft. 3 in. by 20 ft. The dining-hall is 34 ft. by 23 ft. The contractors for the building were Messrs. Lowrey & Scott, and Mr. Yates has acted as clerk of the works.

Wren's First Church.—Under the order of the Ecclesiastical Commissioners, the Church of St. Dionis Backchurch is now being demolished. The church, named after Dionysius the Areopagite,—who, converted by St. Paul at Athens, travelled on to France, where, after his martyrdom, he was adopted under the name of St. Denis as the patron saint,—was the first church completed by Sir Christopher Wren after the Great Fire of London. Originally built in 1288, the present edifice, which stands in Fenchurch-street, was completed in 1674, its length being 66 ft., the breadth 70 ft., and the tower 90 ft. in height. Grinling Gibbons carved the pulpit, and according to Godwin's "City Churches," it possesses in the vestry (and these were seen yesterday) four of the large syringes or squirts which were used by the City forefathers for the extinction of fires. They are about 2 ft. 3 in. long, and are attached to straps which cross round the body of the person using them. These will be conveyed to the Guildhall Museum. The monuments and tablets will be removed to the church to which the parish is affiliated, and the bodies removed to Ilford.—*Times.*

Technical Education for Bricklayers.—A correspondence between members of the Artisans' Institute, St. Martin's-lane, and the Institute of Architects, in type, has been cancelled, having appeared elsewhere. The class asked for some encouragement from the Institute in the way of certificates and diplomas. The Institute replied that it was established for purely professional objects, and could not entertain the idea.

Tinsley's Improved Bedstead.—Mr. Wm. Tinsley, the well-known publisher, not content with the elevation of the mind, his more immediate object, has been trying his hand, and with success too, at the elevation of the body. Observing, at hospitals and elsewhere, the labour and pains required at times to raise a patient in bed to a more upright position, he has devised and patented a very simple arrangement by means of which this is effected in "the twinkling of a bed-post," as people say. By a turn or two of a handle the upper part of the body may be raised to an almost upright position, the bed-clothes being undisturbed and following on the body, and it may be lowered again as rapidly and as easily. There must be many cases in which such an arrangement, cheaply applied, would be a boon. Nor, as it seems to us, is it the sick or wounded alone that might wisely take advantage of the invention. Persons who deem it advantageous to take their breakfast in bed, read their letters and make arrangements for the day, before getting up, would find Tinsley's elevator a great comfort at little cost.

The New Hall for the Phrenological Museum, Edinburgh.—An addition to the Watt Institution, Edinburgh, comprising, together with further class-room accommodation, a large hall for the Phrenological Museum, in Surgeons'-square, is nearly completed. The building is in the Palladian style, but the architect (Mr. David Cousin) is stated to have imparted a French feeling to the details. On the ground-floor is the Phrenological hall; on the first and second floors are class-rooms, with retiring-rooms, for the lecturers in the School of Arts; while the whole of the upper flat is set apart as a drawing-class hall, being excellently lighted from the roof, as well as from either end. All the new class-rooms will be entered from the great staircase in the building, erected for the School of Arts two or three years ago. The front of the Phrenological Museum is enriched by a large oriel window, which forms a prominent feature n the design.

Additional Dock and Wharf Accommodation at Runcorn.—On the 14th ult. the Weston Canal, which connects Runcorn with Weston Point, and is about one mile in length, was re-opened, it having been closed for several months for the purpose of being deepened and made into a ship canal. It has now an average width of 100 ft., and vessels drawing 15 ft. of water are able to pass along it. This canal will afford extra wharfage space of more than a quarter of a mile in length. It is being fitted with five wooden stages and steam cranes, and a high-level tramway is in course of erection, so that the loading and unloading of vessels will be greatly expedited. Since the transfer of the Runcorn and other property to the Bridgewater Navigation in 1872, upwards of 50,000*l*. has been expended in improvements at the port, which has had the effect of materially increasing the trade.

The New Monster Clock at the Crystal Palace.—The monster clock by Messrs. E. Dent & Co., which has been in course of erection during the past six months at the south end of the Crystal Palace, is now completed and in working order. This clock is almost a counterpart of the great Westminster clock (which was built by the same firm), with the exception of the striking and chiming apparatus, and the dial is the largest ever yet constructed, being 40 ft. in diameter, or nearly 1,300 square feet in area. The diameter of the Westminster clock is but 23 ft. The hands, with their counterpoises, weigh nearly a quarter of a ton; the minute-hand measures 19 ft. in length, and moves ¼ in. at every beat of the pendulum. The distance travelled by the point of the minute-hand is nearly four miles a week. During seventeen days of observation the variation was eight seconds only. The face of the clock has been designed by Mr. F. Fenton.

Norwich School Furniture. — Messrs. Colman & Glendenning, of Rampant Horse-street, Norwich, have just erected an additional manufactory on Chalk Hill-road. The building is composed of Portland cement concrete, and has three stories—the upper floor being used as a show-room, the second being devoted to the carpenters and machinery, and the ground floor to the blacksmiths. The manufactory is 113 ft. long, 65 ft. wide, and 40 ft. high to the wall-plate. The whole building is stated to have been designed and carried out under the direction of Mr. J. Holmes, foreman to Messrs. Colman & Glendenning.

New Horse Repository, Canterbury.—A new horse repository was opened at Canterbury on the 11th ult. It has been erected from the drawings of Mr. John Green Hall, architect, Canterbury, the builder being Mr. Frank Fetherstone, of Littlebourne, for a contract sum of 2,167*l*. The walls are of the red Canterbury brick, and the roof of Bangor slates, lighted by skylights. The building is fitted with iron mangers and racks cast by Messrs. Drury & Biggleston, ironfounders, Canterbury. The buildings consist of four separate stables, each 38 ft. long, 28 ft. wide, and 22 ft. high up to the collar, giving to each horse 1,600 cubic feet of breaking space. Also a carriage-house, 36 ft. long by 24 ft. wide, with office and rostrum at the end.

New Literary Institutes in the North.—On the 14th ult. an interesting ceremony took place at Skinningrove, a large and thriving mining village on the Cleveland coast, below Saltburn. Messrs. J. W. Pease & Co. are the principal owners of the place, and with their accustomed liberality they have provided for the intellectual wants of their workpeople, who are compelled to live away from the advantages of towns, by the erection of a literary institute on the same plan as that just opened at New Marske. The total cost of building and furnishing has been about 2,857*l*., and the work has been carried out, as at New Marske, from the plans and under the superintendence of Mr. Carrington, Messrs. Pease's architect.

The Midland Railway.—At the annual dinner of the engineers connected with the Midland Railway at Derby, held recently, the chairman gave, as an instance of the magnitude of the company, the mileage of railway, canals, and tramways, being, in round numbers, about 1,500, the coal consumed for locomotive power amounting annually to 600,000 tons, and for the conveyance of passengers and goods there were 31,000 vehicles. These in line would form a train the rear van of which would be in St. Pancras Station, and the front van six miles north of Derby, with 11¼ miles of locomotives in front; and the number of men employed to work the line is upwards of 36,000.

Drainage at Whitby.—At a special meeting of the Whitby Local Board, a few days since, the plans and report of Mr. Mansergh, C.E., for the construction of a new system of drainage, at a cost of 34,000*l*., were taken into consideration. Mr. Stevenson presided. The meeting considered that the estimated cost was a serious impediment to the execution of the works, and that the scheme was further defective by reason of the length of the main tunnel to the outfall at Saltwick, the syphon across the harbour, and the non-utilisation of present drains. Mr. Mansergh will therefore be requested to modify his scheme so as to make its execution practicable for about 10,000*l*., failing which premiums will be offered for the best plans.

Entrances to Theatres.—We have frequently noticed the bad arrangements for admission to theatres. As we said recently (p. 945, *ante*), in regard to the crowd waiting, the "guardian of the streets remains *within*, while the people press *outside*," though to do so might seem "a folly in a man, and in a woman a negation of modesty." An instance occurred at the Haymarket pit-door on Tuesday night, when a young gentleman was surrounded by thieves, and a valuable watch and chain were taken from him. The *modus operandi* is to pinion the hands, and knock the hat over the eyes, while the adept thief takes the plunder. What is the use of a policeman *inside* calling out "Take care of your pockets!"

Sewer Ventilation at Carlisle. — Mr. Rawlinson has confirmed the advice given to the Carlisle Urban Sanitary Authority by their medical officer and others to convert the sewer manholes into ventilators, and allow the deadly gases that accumulate in these subterranean storehouses of disease to escape into the open air. The *Carlisle Journal* anticipates the best results from the adoption of Mr. Rawlinson's suggestions. The Carlisle sewers are said to be well constructed, but they were made in the early days of sanitary engineering, and require to be improved in accordance with the results of subsequent experience.

Proposed New Pump-room at Tunbridge Wells.—A company is in formation at Tunbridge Wells for the erection of a pump-room. The capital of the company is 6,000*l*., and plans for the building have already been prepared.

A Petroleum "Pipe-line."—An American correspondent says that one of the principal engineering projects claiming attention in Philadelphia is the proposed construction of a "pipe-line" for the conveyance of oil from the oil regions to the Atlantic seaboard, a distance of three hundred miles. It is proposed to construct this line and force the petroleum through a four-inch ordinary main. This is no experiment, as pipe-lines of great length are already working satisfactorily. The line will be laid 30 in. under the ground, over mountains and down to valley stations, where the distribution of the labour of forcing is carried on. When complete the capacity of this pipe-line will supply Philadelphia with no less than 1,500,000 gallons of oil per year for refining.

Staffordshire Potteries. — The dispute between the earthenware manufacturers of the potteries and their workpeople is in a fair way of being settled by arbitration. Business has been generally resumed, excepting in the case of some of the ovenmen, who at first refused to go to arbitration. This led to a meeting of the manufacturers being held, at which, it is said, a lock-out was resolved upon in the event of the ovenmen adhering to their determination. The employers met again on the 23rd ult, and received a deputation of ovenmen from Burslem and Tunstall, who said they were agreeable to a reference. On the evening of the same day the Hanley ovenmen came to a similar decision, and all danger of a conflict seems now to be at an end.

Harbour Improvements at Shoreham.—At the first meeting of the new Board of Trustees appointed for the management of Shoreham Harbour, recently held at the Town-hall, Brighton, the trustees, in furtherance of a projected scheme for deepening and improving the harbour, unanimously agreed to hire at once a steam dredger. It was also stated that the arrangements for raising a loan of 100,000*l.* for the purpose of paying off old subscribers and for further works, were in a satisfactory way of settlement. The trustees have initiated an active policy, the carrying out of which will, it is hoped, raise the harbour into a port of importance, and worthy of the neighbouring town of Brighton.

Compensation Case.—The case of Coles *v.* The Metropolitan Board of Works was heard at the Sheriffs' Court, Red Lion-square, on the 17th ult., before Mr. Under-Sheriff Burchell and a special jury. Compensation was claimed in respect of leasehold interest in a house in Theobald's-road, required for the formation of the new street extending from New Oxford-street to Shoreditch. The jury went to the *locus in quo*, and had a personal view of the property. On their return a verdict was taken by consent for 225*l.* The claim exceeded 1,000*l.*, including the 10 per cent. for compulsory sale.

The Military Centre at Bedford.—Mr. J. Hill has supplied about 400 locks and furniture for this building, the keys of the former all differing throughout. The builders of the Bedford Depôt are Messrs. Hill, Higgs, & Hill, of Lambeth, and the works, which are now all but finished, have been carried out under the superintendence of Lieut. Thompson, R.E.

The Chief Engineership of Newcastle-on-Tyne.—In reference to the paragraph in last week's *Builder* (p. 1154) we have received a letter stating that it is by no means certain that Mr. McKie is the fortunate candidate, "no appointment having been made." Our paragraph was based upon a statement in one of the Newcastle papers.

Goldsmiths' Company.—The Court of this Company have voted 500*l.* in aid of the fund for extending the buildings of the University of Edinburgh. The Company's annual expenditure out of the general corporate funds, quite irrespective of any charity foundation for educational purposes, now amounts to nearly 6,000*l.* a year.—*City Press.*

The Victoria (Philosophical) Institute announces a paper on the "Egyptian Myth of Ra" for Monday, when the Institute meets in its new rooms.

TENDERS

For alterations and repairs at the White Hart, Turner-street, Mile-End, for Messrs. Truman, Hanbury, Buxton, & Co. Mr. W. E. Williams, architect:—

Palmer	£232 0 0
Mar	216 0 0
Anley	190 0 0

For the erection of a villa at Tring, Herts, for Mr. J. T. Pickburn. Mr. W. P. Griffith, architect. Quantities supplied by Messrs. Arding, Bond, & Buzzard:—

Brass	£5,306 0 0
Perry & Co.	5,163 0 0
Snell	5,059 0 0
Hill, Higgs, & Hill	5,048 0 0
Lawrence & Sons	5,027 0 0
Pocock	4,770 0 0
Brown	4,482 0 0
Fincher	4,492 0 0
Honour	4,287 10 8

For the construction of new storm-water sewer, for the Hastings Urban Sanitary Authority. Mr. W. Andrews, surveyor. Quantities by Messrs. Cross & Wells:—

Vidler	£2,398 0 0
Cruttenden	2,352 0 0
Gasson	2,387 15 0
Geary	2,273 0 0
Dowra	2,250 0 0
Reeve (accepted)	2,092 0 0

For the construction of new sea and parade walls, &c., at West Marina, St. Leonard's-on-Sea, for the Hastings Urban Sanitary Authority. Mr. W. Andrews, surveyor. Quantities by Messrs. Cross & Wells:—

Geere	£17,900 0 0!
Botterill	17,028 0 0
Marshall	16,700 0 0
Cruttenden	15,720 0 0
Parks	15,527 0 0
Munday	15,439 12 0
Rodda	15,200 0 0
Reeve	13,700 0 0
Geary	12,100 0 0
King	12,000 0 0
Jenkins	10,000 0 0!

For the construction of seven new groynes at West Marina, St. Leonards-on-sea, for the Hastings Urban Sanitary authority. Mr. W. Andrews, surveyor. Quantities by Messrs. Cross & Wells:—

Reeve	£4,250 0 0
Marshall	3,300 0 0
Botterill	2,789 0 0
Geary	2,760 0 0
King	2,670 0 0
Winser	2,652 0 0

For nine houses on the St. John's Estate, Wakefield. Mr. W. Watson, architect:—

Fawcett & Co. (accepted)	£3,893 0 0

For Board schools at Goole. Mr. W. Watson, architect:—

Elliott, Calam, & Co. (accepted)	£2,694 0 0

For Board school and master's house at Goole. Mr. W. Watson, architect:—

Jackson & Co (accepted)	£520 0 0

For altering and refitting the old Market-house, for the Wakefield Borough Market Company. Mr. W. Watson, architect:—

Fawcett (accepted)	£1,509 0 0

For a detached residence at Doncaster. Mr. W. Watson, architect:—

Anelay (accepted)	£2,200 0 0

For a detached villa at Manygates Park, Wakefield. Mr. W. Watson, architects:—

Elvey & Co. (accepted)	£1,100 0 0

For a lodge, Manygates Park, Wakefield. Mr. W. Watson, architect:—

J. & J. Summers & Co. (accepted)	£255 0 0

For alterations at the Skiddaw Tavern, Chippenham-road, Kilburn, for Mr. Clifford. Mr. Cotton, architect:—

Temple & Forter	£449 0 0
Lamble	427 0 0
Toms	382 0 0
Anley	320 0 0

For alterations and repairs at the Portland Arms' Portland-road, Notting-hill, for Mr. Binks. Mr. Cotton, architect:—

Mills	£649 10 0
Collins	615 0 0
Anley	590 0 0

For additions in rear of the Plough Tavern, Hoxton-street, for Mr. Lock. Mr. Hammon, architect:—

Rawhurst	£734 0 0
Hodson	685 0 0
Page	554 0 0
Anley	540 10 0

For the erection of schools and teacher's residence at Langley, near Macclesfield, for the Sutton School Board. Mr. E. H. Lingen Barker, architect:—

Grosvenor	£2,080 0 0
Lea & Son	2,052 15 0
Massey	1,975 0 0
Cartlidge	1,898 18 0
Webber	1,867 0 0
Roylance	1,8 4 0 0
Smith	1,885 0 0
Biggs	1,670 0 0
Ford	1,618 0 0
Balcombe (accepted)	1,576 0 0

For enlarging the Prudhoe Memorial Convalescent Home at Whitley, Northumberland. Mr. T. Oliver, architect. Quantities by Mr. G. Connell:—

Elliott	£6,312 0 0
Jackson	6,064 0 0
Mitcheson	5,971 0 0
Reed	5,8 6 0 0
Millar	5,863 0 0
Nicholson (too late)	5,66) 0 0
Lee	5,191 0 0
Robson (too late)	4,913 0 0

For alterations to the Royal Oak, Columbia-road, Bethnal-green, for Mr. B. Hyams. Mr. E. Brown, architect:—

Marr (accepted)	£240 0 0

For foundations, basement-story, and rainwater-tanks, for Cudham Vicarage. Messrs. Tress & Innes, architects:—

Sewell	£903 0 0
Hawtrey	885 0 0
Durtnell	880 0 0
Fish	878 0 0
Payne & Balding	860 0 0

For alterations and additions to the Prince of Wales's Tavern, East-road, City-road, for Mr. Elston. Mr. John Viney, architect:—

Staines & Son (accepted)	£340 0 0

For the erection of new premises, Old Bond-street, for Messrs. Thos. Agnew & Sons. Mr. E. Salomons, architect. Quantities by Mr. Bagg:—

Dove, Bros.	£33,317 0 0
Smith & Co.	31,620 0 0
Jackson & Shaw	30,113 0 0
Trollope & Sons	28,613 0 0
Holland & Hannen	27,688 0 0

For forming new entrance to the Clerkenwell Mortuary, now being erected in Spa Fields Burial-ground, for the Vestry of St. James and St. John, Clerkenwell. Mr. H. Saxon Snell, architect:—

Dickens	£388 0 0
Parker & Evans	380 0 0
Ebbage	379 0 0
Sharman	340 0 0

TO CORRESPONDENTS.

"*Who Wants a Church?*"—We have received various replies and inquiries, and have forwarded them to the writer of the letter, with whom the matter must now rest.

Bideford Bells (next week).—"Damp" (next week).—"Glass Roofs" (next week).—"Prevention of Echo" (next week).—C. P. H. (it depends on circumstances that should be inquired into. Consult a competent surveyor).—H. N. L. (article has not been received).—R. M. P. (shall appear in due course).—G. C. (we do not propose to return to the subject) —G. T. S.—C. C.—F. P.—E. H. L. B.—J. G.—J. H. T.—W. E. —R. P.—Landowner.—T. W.—A. W. E.—L.—F. B.—S.—F. J.—T. S. W. C. W. O. S.—A. B.—H. H.—P. & G.—J. G. H.—Mr. G.—J. W.—J. S.—A Churchwarden.—T. K.—An Old Reader.—J. W.—R. H. H. —T. B.—W. H. L.—J. A.—G. G.—A. J. S.—G. S. & Co.—L.—T. M. F. F. C.—M. & S.—L.

We are compelled to decline pointing out books and giving addresses.

All statements of facts, lists of tenders, &c. must be accompanied by the name and address of the sender, not necessarily for publication.

Notice.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.

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